



Common Borders. Common Solutions.

**A Scientific Network
for Earthquake, Landslide & Flood Hazard Prevention**



Geographic Information System Development

(Data collection and processing)

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GA 2. Geographic Information System Development, activities 2.1 - 2.2

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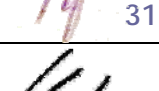
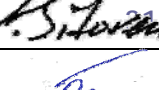
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1 BACKGROUND OF THE DOCUMENT

1.1 EXECUTIVE SUMMARY

Earthquakes, Landslides and Floods (ELF) pose a serious threat to human life, property and infrastructure and cause heavy damage each year stalling sustainable development. The problem gets more serious with time, due to the continuous development and expansion of land uses even in hazard prone areas [3],[5].

A large number of actions have already been taken by the EU regarding hazard mitigation including legislation, the formation of various bodies, the establishment of organizations and funding instruments. The current trend to ELF hazard mitigation suggests an integrated approach where all the natural hazard mitigation stages -prevention, preparedness, response and recovery- are considered, with focusing on the first stage: Prevention! [2],[4],[6],[7]. Hazard Prevention as a process, requires an as accurate as possible ELF hazard identification and that in turn requires scientifically sound methodologies and accurate and reliable data [8],[9].

At this point, the major problem regarding Earthquake, Landslide and Flood hazards identification in the European Union is related to information gaps [1], [8], [9]. Required data in appropriate scales are either obsolete or inaccessible and even when they can be found, metadata are missing so it is difficult to assess their accuracy and reliability. Having said that, reliable information is indispensable for decision making at all levels including planning effective preventive measures.

One of the basic targets of the SciNetNatHaz project is the collection, harmonization, coding and free/open access of data related to ELF hazards. Data, during the project's implementation are going to be collected in two phases: a preliminary one; and the final one following the selection of methodologies to be used for each of the ELF hazards assessment in pilot implementation areas.

The ScinetNat-Haz project's second Group of Actions (GA.2), includes activities aiming at data collection and the necessary data processing in order to harmonize the data collected. Data requirements are defined at large by the methodological approaches to be used for ELF hazard assessment in pilot implementation areas in various countries so, the data harmonization procedures foreseen, are absolutely necessary. At a later stage, the harmonized data will populate a Geo-database built into a Geographic Information System. At the final stage, all data and results produced will be published through a Web GIS platform. As ownership issues may arise considering data sharing over the WebGIS platform

which is being developed, it has been decided to provide free/open access only to the processing results as soon as they become available and not to the raw data, except from the cases where written permissions are given by the data owners.

At this preliminary phase, basic data including topographic and geologic maps, hydrologic and meteorological data as well as additional information regarding past earthquake, landslide and flood events were collected from various sources from all the participating countries. Data were classified according to their theme, processed, harmonized, coded and prepared for further use. Metadata were also created according to the INSPIRE provisions using the online INSPIRE template.

This document provides brief information about the procedures followed and the processes carried out to prepare data for further use in the project.

The overview of the whole procedure followed and its outcomes reveals various aspects in respect to i) data availability and access; ii) data required processing; iii) spatial characteristics of data.

1.2 SCOPE AND OBJECTIVES

The project’s implementation requires the selection of methodologies to be used for each of the natural hazards investigated. As the methodological approach is closely related to data requirements, the data collection is a dynamic process changing over time until the hazard assessment methodology to be applied is finally selected (fig.1).

Having said that, there is a multitude of data types always required when considering ELF hazard assessment; no matter which the implemented methodology is going to be. These data types describe and are related to: topography, geomorphology, geology, hydrology, climate, history (past events), to mention a few.

In that respect, an effort has been made to collect such data in order to form a geographic database (Geo-Database) which will provide the background of the applied research which will follow.

Within this context, topographic, geologic, hydrologic and various types of thematic maps were collected from each partner for his respective country, both in analogue and in digital format. Additional data such as satellite images and ASTER DEMs were also downloaded from the respective web sites.

Data were evaluated for their reliability in order to be used within the scopes of the project and those who failed the evaluation were rejected. Data which had a positive evaluation were forwarded for further processing which included all stages of the harmonization process: geo-referencing, spatial adjustments, reference system transformation, coding and metadata creation according to the INSPIRE provisions. Metadata creation is an absolute necessity for data which are going to be distributed (open/freely accessed) because they provide valuable information necessary for their evaluation.

1.3 RELATED DOCUMENTS

1.3.1 Input

List of former deliverables acting as inputs to this document

Document ID	Descriptor
D.1.01	Current status assessment / legislation and bibliography review

1.3.2 Output

List of other deliverables for which this document is an input.

Document ID	Descriptor
D.2.02	Geodatabase development
D.2.03	WebGIS Development / Update and completion of geodatabase
D.3.01	Results from seismic, landslide and flood hazard assessment coming from regional implementation of adopted methodologies
D.3.02	The final report: Recapitulation of the main results from progress reports. It will also focus on results from local scale assessment of the examined hazards and the suggestion of preventive measures

2 INTRODUCTION

This document summarizes the flow and procedures used for the data mining (search and acquisition) as well as the data processing.

As already mentioned this is the initial phase of data collection and processing, since at a later stage, data requirements issues may arise, as methodologies to be implemented, will be finally selected. Data updating has been foreseen in GA.2>A.2.5 during the geo-database development (activity 2.5). According to that, basic types of data needed for any case when assessing ELF hazards were collected. The implementation of GA.1: Activities 1.4-1.6 provided an overview of the data requirements. The Geo-Database update will be based on upcoming activities (GA1: Activities 1.7 - 1.13) and on field data and measurements during the pilot implementation phase.

3 APPROACH

According to the results of activities (A.1.4-A.1.6), the types of data required include:

- Topographic data (maps on 1:50,000 scale)
- Geologic data (maps on scale 1:50,000)
- Meteorological data
- Hydrological data (hydrologic networks including watersheds)
- Land Use/ Land Cover data
- Seismological/Earthquake Hazard related data
- Landslide events (landslide inventory, including all available relative data)
- Flood events (Flood event inventory, including all available relative data)
- Infrastructure data (road network, urban areas, rail networks, firestations, hospitals etc.)

The procedure followed for the data collection and processing is described in the following chapter.

3.1 DATA COLLECTION WORKFLOW

For the data collection, a common template (Excel-file) (fig 1) was created and distributed to all partners for consistency reasons. The catalog to be created included essential information regarding the data mined.

Each partner acquired data for the respective country and completed the catalog with the required details (data description, data owner, data type, data codes, level of processing, data file names and Reference System).

	Description	Owner	Type (tab/ vec/rast)	Owner's Code	Internal Code	Processing	File Name	Coordinate System
TOPOGRAPHIC DATA								
GEOLOGIC DATA								
HYDROLOGIC DATA								
SEISMOLOGICAL DATA								

Fig 1. Data catalogue template

All partners made an extensive research for data into open databases, governmental organizations, universities, private companies and other possible sources of data. On a later stage they completed the list and forwarded it to the Action’s responsible (ENPI Beneficiary) who combined all catalogues in a single list. In Annex I, a unified data catalogue of available data of each Country (partner) is provided.

Partners also uploaded the data collected to a Cloud Server (BOX) used by the SciNetNatHaz team so that data files can be accessed by any team member.

3.2 DATA PROCESSING WORKFLOW

Processes implemented to evaluate, harmonize, code and “tag” with metadata all the collected data files are described in brief in the following paragraphs. The procedure followed included:

- Data Overview
- Data coding
- Geographic harmonization
- Tabular data integration
- Digitization
- Metadata files creation

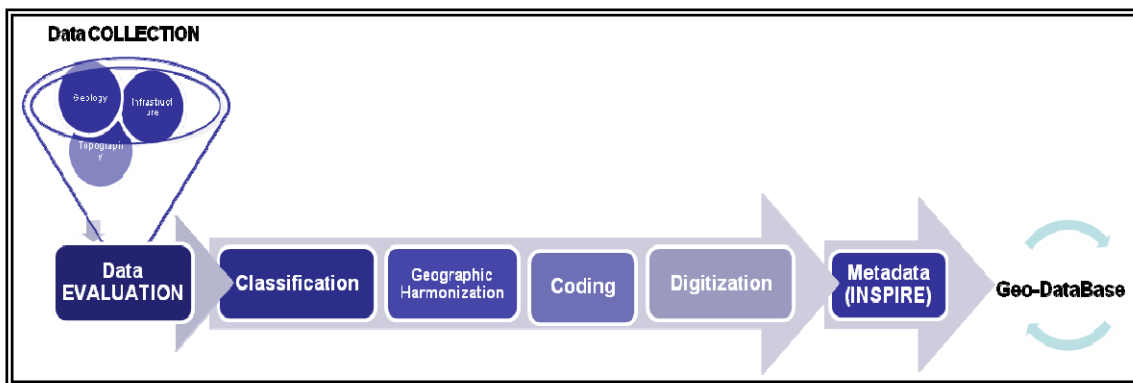


Fig 2. Data collection & processing workflow

3.2.1 DATA OVERVIEW

The data overview was the first action that was performed in order to examine the consistency between of the provided data catalogue and the corresponding data. For this reason, each data set was inserted into GIS software (QGIS) in order to identify their “integrity” (malfunction recognition) and was examined in relation to “coordinate system”, “data code correspondence” and “file name correspondence”. So, for each data set a checklist was created in order to be assessed the content of the provided data at this preliminary stage.

3.2.2 DATA CODING

Following the data overview, an “internal” data coding was performed in order to have a uniform (project’s) code reference for the gathered data.

The coding structure was based on the thematic nature of the data as well as the type of data (vector, raster, tabular), the country origin and a three (3) digit code (serial number).

The table 3 depicts an example of the codes which have been assigned to each dataset according to the thematic category it has been classified to. It should be pointed that the data coding was implemented also to the derived data (e.g. the data which were produced from the digitization of the raster initial data).

Table 3.1 Data coding

Identifier		Code	FILE NAME	Description
MAP THEME	TOPOGRAPHIC	TOPO_RAST_GR_001	TR_GR_001	Topographic, raster type, Greece, 001 (serial number)
		TOPO_VECT_GR_R001	TV_GR_R001	Topographic, vector type, Greece, *R001 (serial number)
	GEOLOGIC	GEOLOG_RAST_GR_001	GEOR_GR_001	Geologic, raster type, Greece, 001 (serial number)
		GEOLOG_VECT_GR_R001	GEOV_GR_R001	Geologic, vector type, Greece, *R001 (serial number)
	HYDROLOGIC	HYDRO_RAST_GR_001	HYDRA_GR_001	Hydrologic, raster type, Greece, 001 (serial number)
		HYDRO_VECT_GR_001	HYDVE_GR_R001	Hydrologic, vector type, Greece, *R001 (serial number)
	METEOROLOGICAL	MET_RAST_GR_V001	MERA_GR_V001	Meteorological, raster, Greece, ***V001 (serial number)
		MET_VECT_GR_T001	MEVE_GR_T001	Meteorological, vector, Greece, **T001 (serial number)
		MET_TAB_GR_001	METAB_GR_001	Meteorological, tabular, Greece, 001 (serial number)
	LAND USE/ LAND COVER	LU_RAST_GR_001	LURA_GR_001	Land use, raster type, Greece, 001 (serial number)
		LU_VECT_GR_R001	LUVE_GR_R001	Land use, vector type, Greece, *R001 (serial number)
	SEISMOLOGICAL DATA	ERTK_RAST_GR_V001	ERTRA_GR_V001	Seismological, raster, Greece, ***V001 (serial number)

		ERTK_VECT_GR_T001	ERTVE_GR_T001	Seismological, vector, Greece, **T001 (serial number)
		ERTK_TAB_GR_001	ERTAB_GR_001	Seismological, tabular, Greece, 001 (serial number)
LANDSLIDES PAST EVENTS DATA		LANDS_RAST_GR_V001	LARA_GR_V001	Landslides, raster, Greece, ***V001 (serial number)
		LANDS_VECT_GR_T001	LAVE_GR_T001	Landslides, vector, Greece, **T001 (serial number)
		LANDS_TAB_GR_001	LATAB_GR_001	Landslides, tabular, Greece, 001 (serial number)
FLOODS PAST EVENTS DATA		FLOD_RAST_GR_V001	FLORA_GR_V001	Floods, raster, Greece, ***V001 (serial number)
		FLOD_VECT_GR_T001	FLOVE_GR_T001	Floods, vector, Greece, **T001 (serial number)
		FLOD_TAB_GR_001	FLOTAB_GR_001	Floods, tabular, Greece, 001 (serial number)
INFRASTRUCTURE (ROADS, RAILWAYS, URBAN AREAS)		INFRA_RAST_GR_001	INFRA_GR_001	Infrastructure, raster type, Greece, 001 (serial number)
		INFRA_VECT_GR_R001	INFVE_GR_R001	Infrastructure, vector type, Greece, *R001 (serial number)

* R: denotes that the dataset is derived from the digitization of the Raster (001)

** T: denotes that the dataset is derived from the processing of the tabular data (001)

*** V: denotes that the dataset is derived from the processing of the vector dataset (001)

3.2.3 GEOGRAPHIC HARMONIZATION

The first step of the data harmonization process is the geographic harmonization. Purpose of this process is to transform data collected from various sources from various countries, having different Coordinate Reference Systems (CRS), to a single CRS in order to be available for further evaluation, processing, fusion etc. Almost each European country records data and produces maps following its own-different than any other-CRS. It is therefore evident that for practical reasons, all available data should be transformed and geo-referenced into a common coordinate system. The selected reference system is the World Geodetic System - WGS84 (Geographic Coordinates), which provides the ability to work on large areas with harmonized data and at the same time, when necessary, it can be transformed to local reference systems with minimal distortion. Moreover, the specific CRS

is closely related to GPS positioning applications, so maps created using it, have an, as accurate as possible, positioning indication when using a GPS. The WGS84 reference system is consistent with the International Terrestrial Reference Frame (ITRF) with minimal difference between them (around 1cm worldwide).

The WGS 84 is in fact an Earth global reference system. It includes an Earth model defined by a set of parameters. Primary parameters define the shape of the Earth (ellipsoid) and the secondary ones describe a detailed gravity model on the Earth’s surface.

There is an ongoing effort made by the EU to adapt to a “local”-pan-European reference system based on WGS84, evident by the Programme EPIC (European Programme for the Implementation of a Common geodetic reference frame) set up in 1991 and having biannual meetings. Geo-referenced to WGS84 data, can be re-transformed to any other CRS including the pan-European data Reference System EVRF2007 [16], [17] whenever it will be adopted by the majority of EU countries, including most of the involved in the project ones.

Transformation of National CRS and datums to geographic coordinates of the WGS84 is based on mapping equations used to transform coordinate data from source projection coordinates (x,y) of the respective National geodetic Reference System (GRS) to geographic coordinates (φ, λ) of the WGS84. The transformation always incorporates an error to transformed coordinates but at the scale of a respective implementation covering very large areas, this error can be ignored.

Almost all commercial and Open source GIS software incorporates the ability to transform data from various sources and CRS. For consistency among partners and practical reasons, the open source software Quantum GIS was selected for the procedure (<http://www.qgis.org/en/site/about/index.html>).

A brief overview of it’s abilities to transform data into various CRS is given here: http://www.ga.gov.au/webtemp/image_cache/GA20953.pdf

As already mentioned, the data CRS transformation was implemented with the use of “QGIS” software and the provided automated “reproject-warp” tool. The transformation process was performed to both raster and vector data.

It must be noted that, even tabular data can be transformed by following the steps: i) input tabular data into a Geographic Information System; ii) conversion to a shapefile (vector file containing both the points and their attributes; iii) transformation (and/or spatial adjustment) of the shapefile. At the end of this procedure, the coordinates in the resulting file are transformed into the new CRS.

A list of the Coordinate Reference Systems and Datums used in the respective to partners, countries, is given in Table 3.1.

Table 3.2 Data Coordinate Systems use in countries around the Black Sea

(Source: TRANSDAT-WorldWide coordinate transformations http://www.killetsoft.de/p_trdl_e.htm#continent)

Country	Coordinate system
Greece (LP, P1,P2)	<p>Coordinate Systems Greek Transversal Mercator Coordinates HGRS87/EGSA87 Greek UTM Coordinates zones 4-5 Greek Transversal Mercator Coord. TM3 West zone Greek Transversal Mercator Coord. TM3 Middle zone Greek Transversal Mercator Coord. TM3 East zone Geographic coordinates (Athens) [deg,min,sec] Geographic coordinates (Athens) [deg] UTM coordinates (northern hemisphere) Geographic coordinates (Greenwich) [deg] Geographic coordinates (Greenwich) [deg,min] Geographic coordinates (Greenwich) [deg,min,sec] Cartesian coordinates</p> <p>Reference Systems HGRS87/EGSA87 (GR), Dionysos, GRS80 ED50 (GR), Potsdam, Hayford/Int. HELLENIC (GR <±3m), Athens, Bessel ETRS89 (Europe), geocentric, GRS80 WGS84 (World-wide GPS), geocentric, WGS84 WGS72 (World-wide), geocentric, WGS72</p>
Turkey	<p>Coordinate Systems Turkey TUREF/TM27 Transverse Mercator Turkey TUREF/TM30 Transverse Mercator Turkey TUREF/TM33 Transverse Mercator Turkey TUREF/TM36 Transverse Mercator Turkey TUREF/TM39 Transverse Mercator Turkey TUREF/TM42 Transverse Mercator Turkey TUREF/TM45 Transverse Mercator UTM coordinates (northern hemisphere) Gauss-Krueger (3 degrees wide strips) Geographic coordinates (Greenwich) [deg] Geographic coordinates (Greenwich) [deg,min] Geographic coordinates (Greenwich) [deg,min,sec] Cartesian coordinates</p> <p>Reference Systems TUREF (TR), geocentric, GRS80 ED50 (TR <±2m), Potsdam, Hayford/Int. ETRS89 (Europe), geocentric, GRS80</p>

	WGS84 (World-wide GPS), geocentric, WGS84
Bulgaria	<p>Coordinate Systems</p> <p>Bulgarian BGS2000 Lambert coordinates</p> <p>Gauss-Krueger (6 degrees wide strips)</p> <p>UTM coordinates (northern hemisphere)</p> <p>Geographic coordinates (Greenwich) [deg]</p> <p>Geographic coordinates (Greenwich) [deg,min]</p> <p>Geographic coordinates (Greenwich) [deg,min,sec]</p> <p>Cartesian coordinates</p> <p>Reference Systems</p> <p>BGS2000 (BG), geocentric, GRS80</p> <p>S42/83 (BG), Pulkovo, Krassowskij</p> <p>ETRS89 (Europe), geocentric, GRS80</p> <p>WGS84 (World-wide GPS), geocentric, WGS84</p>
Romania	<p>Coordinate Systems</p> <p>Romanian Stereo70 Stereographic coordinates</p> <p>Romanian Stereo33 Stereographic coordinates</p> <p>Gauss-Krueger (6 degrees wide strips)</p> <p>UTM coordinates (northern hemisphere)</p> <p>Geographic coordinates (Greenwich) [deg]</p> <p>Geographic coordinates (Greenwich) [deg,min]</p> <p>Geographic coordinates (Greenwich) [deg,min,sec]</p> <p>Cartesian coordinates</p> <p>Reference Systems</p> <p>Stereo70 (RO $<\pm 3m$), Dealul Piscului, Krassowskij</p> <p>Stereo33 (RO $<\pm 3m$), Dealul Piscului, Hayford/Int.</p> <p>S42/83 (RO $<\pm 3m$), Pulkovo, Krassowskij</p> <p>ETRS89 (Europe), geocentric, GRS80</p> <p>WGS84 (World-wide GPS), geocentric, WGS84</p>
Ukraine	<p>Coordinate System</p> <p>Type: geocentric</p> <p>Datum:</p> <p>Ellipsoid: Krassowsky 1940</p> <p>Semi Major: 6378245</p> <p>Inverse Flattening: 298.3</p> <p>Prime Meridian: Greenwich</p>
Moldova	CRS: ETRS87, Elipsoid: GRS80

3.2.4 TABULAR DATA INTEGRATION AND DIGITIZATION

Most of the different types of data which were collected during this phase, present a purely spatial character. These data include raster maps and spatial vector data which were produced from the digitization of the aforementioned maps. However, some kinds of data like meteorological, seismological and inventories of past flood and landslide events although they too present a spatial character (e.g. the location of the landslide event; the location of the meteorological station), they are provided in a tabular form. Tabular data were processed, and transformed to spatial vector data (GIS layers). This is a standard procedure already described in previous paragraphs. Data processing and transformation

into spatial information layers provides the ability to combine and incorporate these datasets into spatial databases which could be used for the development of a Geographic Information System (GIS). Data can then be used to produce additional spatial information, using advanced GIS procedures like interpolation methods, spatial statistics, morphometry models etc.

The digitization process followed standard procedures where all related parameters and especially errors incorporated during the processing stages, were assessed.

Data processing and digitization are time and effort consuming procedures so they were limited to cover areas of “interest”; where such types of data are necessary for the project implementation, namely the wider areas which were selected for the “pilot” case studies. Table 3.2 summarizes the features which were digitized from different types of maps.

Table 3.3 Produced Digitized data features

Maps	Features	Remarks
Topographic	Contours; elevation points; hydrographic network	Scales: 1:5,000; 1:50,000; 1:100,000
Geologic	Geologic formations; faults; creeping movements; water sources; strike/dip directions	Map scale 1:50,000 or coarser
Hydrologic 1:50,000 1:100,000	Watersheds	Watershed features were derived from Digital Elevation Models (DEMs*) and corrected with the use of topographic maps
OpenStreet Maps & Google Maps	Road and Railroad network	Better than 1:50,000

* DEM: produced with the use of digitized elevation features (contours; elevation points) through GIS procedures (interpolation methods).

3.2.5 METADATA

Metadata records (*descriptive data about the data*) are files of information which describe the fundamental characteristics of a data file, an information resource or a geospatial service. It represents the “who”, “what”, “when”, “where”, “why” and “how” of the resource (*The Federal Geographic Data Committee - FGDC, <http://www.fgdc.gov/metadata>*).

The European Commission (EC) has released a Directive which came into force on 15th May 2007, the INSPIRE Directive (Infrastructure for Spatial Information in the European Community, Directive 2007/2/EC). According to that, the European Union (EU) aims to create a Spatial Data Infrastructure (SDI) in order to facilitate the sharing of environmental spatial information among public sector organisations as well as the public access to spatial information across Europe, providing that way a better policy-making across boundaries (<http://inspire.ec.europa.eu>).

The INSPIRE Directive is based on the following common principles (<http://inspire.ec.europa.eu>):

- *Data should be collected only once and kept where it can be maintained most effectively.*
- *It should be possible to combine seamless spatial information from different sources across Europe and share it with many users and applications.*
- *It should be possible for information collected at one level/scale to be shared with all levels/scales; detailed for thorough investigations, general for strategic purposes.*
- *Geographic information needed for good governance at all levels, should be readily and transparently available.*
- *Easy to find what geographic information is available, how it can be used to meet a particular need, and under which conditions it can be acquired and used.*

For the implementation of aforementioned Directive regarding metadata, the European Commission (EC) released the Regulation (EC) No 1205/2008 of 3 December 2008 as well as supportive documents (INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119 - 06.11.2013, the latest version)[<http://inspire.ec.europa.eu/index.cfm/pageid/101>].

In this phase of the project’s implementation, the metadata file (records) for each collected dataset were produced according to the aforementioned “INSPIRE” Directive and the related Regulations. The implementation of this procedure was based on the online tool “Metadata Editor” provided by the EC, INSPIRE Geo-portal (<http://inspire-geoportal.ec.europa.eu/editor/>). The image below (Fig. 4) depicts the graphical user interface (GUI) of the metadata editor tool.

After the completion of the mandatory fields of information, the created records of metadata were saved in *eXtensible Markup Language* (XML) format, which is readable among various types of software including GI Systems. The metadata editor provides additionally a validation tool in order to examine the integrity of the generated metadata file.

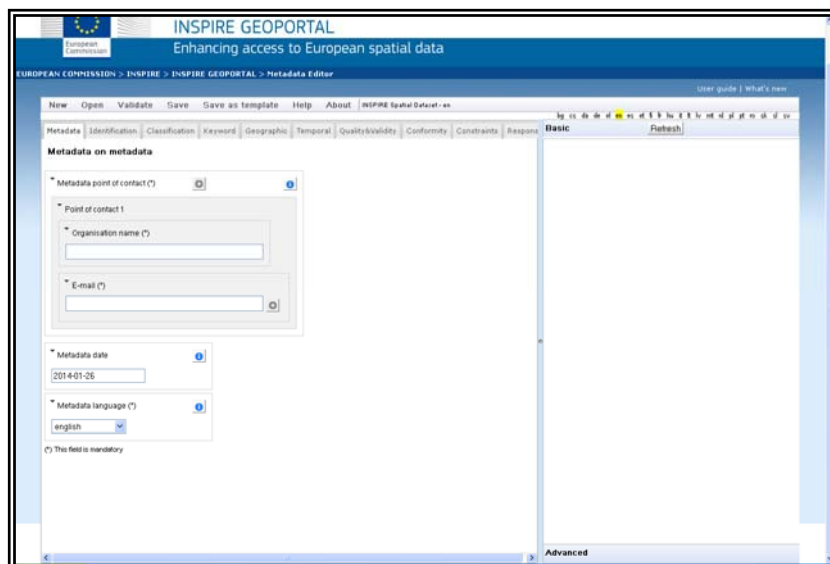


Fig 3. Metadata editor GUI

4 SALIENT FINDINGS

An overview of the procedure taken to collect and prepare data for further use can be included in the following remarks:

- **Data search and acquisition:** The development of Spatial Data Infrastructure (SDI) in each Country under common standards (INSPIRE), can play an important role to data sharing and therefore to facilitate a better decision-making process across borders. Unfortunately, the INSPIRE directive has not been fully implemented, not even in the EU member states participating in this project (Greece, Romania and Bulgaria). Thus, the absence of National SDIs causes serious problems in geospatial data search and acquisition since; i) data are not provided by a single point (organization); ii) their

existence or their availability is usually unknown; iii) in most of the cases, metadata are either not available or do not exist, a fact which poses serious restrictions about the potential uses of the data found.

Having said that, the procedure followed in this project during the search for data, reveals several difficulties since the different types of data which have to be collected, are maintained in various National Organizations, Services, Higher Education Institutions etc. Some of them are:

- Finding the specific Data owner/maintainer
- Reluctance of the data owner/maintainer to provide the requester data
- Lack of online tools for data search (data catalogues)
- Lack of Metadata
- Data constrains (permissions of use)
- Time consuming data ordering procedures

It must be pointed out that the Lack of Metadata must be considered as the key parameter in finding “usable” data in terms of reliability, accuracy and possibility of normalization and harmonization so, creating metadata according to the INSPIRE directive, must be considered as a prerequisite of paramount importance.

The following table (Table 4.1) summarizes the available data per Country (partner) and thematic area. Table 4.2 provides the available data as number of files acquired.

Table 4.1 Data inventory per Country(Partner)

Data type/ Partner (Country)	Topographic	Geologic	Meteorological	Hydrological	LU/LC	Seismological	Landslide events	Flood events	Infrastructure data
Greece (LP, P1,P2)	X	X	X	X	X	X	O	X	X
Turkey	X	X	X	X		X	X		
Bulgaria	X	O	O	O	O	O	O	O	O
Romania	X*	X	X*	X*	X	X		X	X
Ukraine	X	X	X	X		X	X	X	
Moldova	O	X	X	X	O**	X	X		O

X: denotes data availability; * for specific areas only; ** Vegetation maps; O: denotes that data exist but they are not available

Table 4.2 Number of available data files per Country(Partner)

Data type/ Partner (Country)	Topographic	Geologic	Meteorological	Hydrological	LU/LC	Seismological	Landslide events	Flood events	Infrastructure data
Greece (LP, P1,P2)	25	21	1	4	2	6		2	3
Turkey	3	6	2	10		7	1		
Bulgaria	24								
Romania	3	8	1	1	2	1		1	2
Ukraine	515	10	5	11		4	4	2	
Moldova		24	1	1		1	13		

- Data processing: As already mentioned, lack of Spatial Data Infrastructures (SDIs) is a twofold issue: it poses constraints in data search, and blocks trans-boundary cooperation as regards the use of harmonized data and the implementation of common methodologies. This is due to the creation of spatial data under different standards (spatial reference; data models; metadata etc.). As is therefore evident, in order for data collected to be used in projects requiring trans-boundary cooperation, a series of data processing is required.

In this initial phase of data collection for the project needs, the main issue that arose was the transformation of data into a common coordinate reference system (CRS). Data coming from different countries possess a different CRS. Even more, many times even data coming from the same country have different CRS, due to the different, for each case, Organization which has produced them or is maintaining them. As a result of this situation, the data provided by all of the partners had to be (and actually were) transformed into a common CRS (WGS 84) using an open source GIS software (Quantum GIS-QGIS). Having said that, open source software has been selected as the tool for the implementation because it provides all of the required functionality at no cost and it can be supported by the partnership members. “No cost” means in our case, that at a later stage already foreseen, it can be distributed to stakeholders with the necessary manuals, sample data and tutorials containing a step-by-step approach to the implementation of hazard assessment methodologies.

The main problem encountered during this procedure was related to unrecognizable or even undefined spatial reference, mainly due to the fact that the data were be having a “local” National CRS and which was not recognizable from the GIS software or the data had a spatial reference but it was not assigned to the data. To this end, the data with undefined CRS were firstly assigned with their respective CRS (so they were geo-referenced) and then transformed into the selected Reference System, WGS 84 CRS. Moreover local/National Grids were created and incorporated into the QGIS software so that they can be readily available to less experienced users.

As already mentioned, metadata is a key issue for data use since they provide all the necessary information about the data. For this reason, metadata files were created for the entire data collection except for the few cases where metadata files already existed. In this way, it will be feasible to evaluate the reliability & accuracy and therefore the “usability” of all collected and used for the project’s implementation data files. Moreover, as data reliability and accuracy regulate part of the results produced when applying methodologies for hazard assessment, the metadata files created are necessary for defining the level of reliability and accuracy of the project’s final results.

Another important impact due to the absence of National SDIs is the fact of multiple digitization of the same source of data (i.e. analogue maps etc) by different Organizations. So, even though funds have been spent for duplicate results, data, either are not made available to the public, or, permission for their use has serious constrains and limitations. Since digitization of analogue data is, a time and effort consuming process, it was limited to cover areas of “interest”; where such types of data are necessary for the project implementation, namely the wider areas which were selected for the “pilot” case studies.

5 CONCLUSIONS

At this initial phase of the SciNetNatHaz project’s implementation, basic data including topographic, geologic and various thematic maps, hydrologic and meteorological data, as well as, additional information regarding past earthquake, landslide and flood events were collected from various sources from all participating in the project countries.

A total number exceeding the 720 files was collected, reviewed, evaluated, classified into thematic categories, processed, coded and harmonized.

The procedure followed the guidelines set by EU related legislation, the INSPIRE directive and related documents as well as the state-of-practice [10],[11],[12],[13],[14],[15],[18],[19].

Metadata were also created according to INSPIRE provisions using the online INSPIRE web application.

Data were mostly collected from governmental agencies responsible for production and maintenance of the respective maps and data.

Hazard inventories, although in existence, are not actually available for public access. Even in the few cases where they could be acquired, the level of Bureaucracy, restrictions and constrains, makes their acquirement extremely difficult.

Landslide inventories are no exception. Even when they exist in some cases, they are not accessible. For instance, there is a Landslide inventory for Greece, maintained by the Institute of Geological and Mineral Exploration (IGME) which is not accessible. There was information though, that it will be made available at some point in the future.

A similar situation stands for the flood hazard inventories in almost the entity of the countries involved. Data related to flooding events were gathered by investigation in Public Services and other information resources (the press, colleagues, universities etc).

Exception to this situation is the Earthquake inventories containing systematic recordings of earthquake events, maintained by National Organizations or Public Bodies as EPPO/ITSAK (Greece), KOERI (Turkey), Academy of Sciences Romania and Academy of Sciences Moldova. Earthquake data can also be retrieved from several international Organizations activated in this field (csem-EMSC, ORFEUS, Earthquake data portal etc).

Spatial Data Infrastructure (SDI) development across Europe and the neighboring countries, under common standards as the INSPIRE provisions, is of extremely high importance and should be a task of an equally high priority. SDI is expected to play an important role to data sharing, to the use of harmonized data and to the implementation of common methodologies; addressing in this way the “information gap” which is one of the main problems already recognized by the EU, regarding Earthquake, Landslide and Flood Hazard mitigation [1], [8].

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7 ANNEX I - UNIFIED CATALOGUE OF AVAILABLE DATA

Country Name	Description	Owner	Type (tab/ vec/rast)	Owner's Code	Processing	File Name	coordinate system
Ukraine	Topographic Atlas, 1:50.000, The Black Sea coast from Vylkovo to Skadovsk	Kiev military cartographic factory	rast		Georeferencing, digitization	[Gl._redaktor_Igor_Gil]_CHernomorskoe_poberezhe_ot(BookFi.org).djvu	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Satu-Mare"	Joint Staff of Military force	rast	L-34-10	Georeferencing, digitization	L-34-010	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Negreshty-Oash"	Joint Staff of Military force	rast	L-34-11	Georeferencing, digitization	L-34-011	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Sigetu-Mamaciey"	Joint Staff of Military force	rast	L-34-12	Georeferencing, digitization	L-34-012	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Visheul-De-Sus"	Joint Staff of Military force	rast	L-35-01	Georeferencing, digitization	L-35-001	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Beyle-Borsha"	Joint Staff of Military force	rast	L-35-02	Georeferencing, digitization	L-35-002	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Putila"	Joint Staff of Military force	rast	L-35-03	Georeferencing, digitization	L-35-003	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Ribnitsa"	Joint Staff of Military force	rast	L-35-10	Georeferencing, digitization	L-35-010	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Slobodka"	Joint Staff of Military force	rast	L-35-11	Georeferencing, digitization	L-35-011	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kotovsk"	Joint Staff of Military force	rast	L-35-12	Georeferencing, digitization	L-35-012	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Krasny Okny"	Joint Staff of Military force	rast	L-35-23	Georeferencing, digitization	L-35-023	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Dolinskoye"	Joint Staff of Military force	rast	L-35-24	Georeferencing, digitization	L-35-024	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Dubossary"	Joint Staff of Military force	rast	L-35-35	Georeferencing, digitization	L-35-035	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Velikaya Mihaylovka"	Joint Staff of Military force	rast	L-35-36	Georeferencing, digitization	L-35-036	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Tiraspol"	Joint Staff of Military force	rast	L-35-48	Georeferencing, digitization	L-35-048	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Chimishliya"	Joint Staff of Military force	rast	L-35-58	Georeferencing, digitization	L-35-058	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kaushany"	Joint Staff of Military force	rast	L-35-59	Georeferencing, digitization	L-35-059	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Krasnoye"	Joint Staff of Military force	rast	L-35-60	Georeferencing, digitization	L-35-060	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Chadur-Linga"	Joint Staff of Military force	rast	L-35-70	Georeferencing, digitization	L-35-070	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Tarutino"	Joint Staff of Military force	rast	L-35-71	Georeferencing, digitization	L-35-071	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Sarata"	Joint Staff of Military force	rast	L-35-72	Georeferencing, digitization	L-35-072	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kagul"	Joint Staff of Military force	rast	L-35-81	Georeferencing, digitization	L-35-081	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Bolgrad"	Joint Staff of Military force	rast	L-35-82	Georeferencing, digitization	L-35-082	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Artsiz"	Joint Staff of Military force	rast	L-35-83	Georeferencing, digitization	L-35-083	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Tatarbunary"	Joint Staff of Military force	rast	L-35-84	Georeferencing, digitization	L-35-084	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Galats"	Joint Staff of Military force	rast	L-35-93	Georeferencing, digitization	L-35-093	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Izmail"	Joint Staff of Military force	rast	L-35-94	Georeferencing, digitization	L-35-094	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kiliya"	Joint Staff of Military force	rast	L-35-95	Georeferencing, digitization	L-35-095	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Vilkovo"	Joint Staff of Military force	rast	L-35-96	Georeferencing, digitization	L-35-096	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Mechin"	Joint Staff of Military force	rast	L-35-105	Georeferencing, digitization	L-35-105	Gauss–Krüger

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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tulcha"	Joint Staff of Military force	rast	L-35-106	Georeferencing, digitization	L-35-106	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sulina"	Joint Staff of Military force	rast	L-35-108	Georeferencing, digitization	L-35-108	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lubashevka"	Joint Staff of Military force	rast	L-36-1	Georeferencing, digitization	L-36-001	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vradievka"	Joint Staff of Military force	rast	L-36-2	Georeferencing, digitization	L-36-002	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Arbuzinka"	Joint Staff of Military force	rast	L-36-3	Georeferencing, digitization	L-36-003	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bratskoe"	Joint Staff of Military force	rast	L-36-4	Georeferencing, digitization	L-36-004	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ketrisanovka"	Joint Staff of Military force	rast	L-36-5	Georeferencing, digitization	L-36-005	Gauss-Krüger
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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sholokhovo"	Joint Staff of Military force	rast	L-36-9	Georeferencing, digitization	L-36-009	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tomakovka"	Joint Staff of Military force	rast	L-36-10	Georeferencing, digitization	L-36-010	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Zaporogie"	Joint Staff of Military force	rast	L-36-11	Georeferencing, digitization	L-36-011	Gauss-Krüger
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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Shiryaevo"	Joint Staff of Military force	rast	L-36-13	Georeferencing, digitization	L-36-013	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Domanevka"	Joint Staff of Military force	rast	L-36-14	Georeferencing, digitization	L-36-014	Gauss-Krüger
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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belousovka"	Joint Staff of Military force	rast	L-36-16	Georeferencing, digitization	L-36-016	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bashtanka"	Joint Staff of Military force	rast	L-36-17	Georeferencing, digitization	L-36-017	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vladimirovka"	Joint Staff of Military force	rast	L-36-18	Georeferencing, digitization	L-36-018	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nikolaevka"	Joint Staff of Military force	rast	L-36-19	Georeferencing, digitization	L-36-019	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Apostolovo"	Joint Staff of Military force	rast	L-36-20	Georeferencing, digitization	L-36-020	Gauss-Krüger
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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vasilevka"	Joint Staff of Military force	rast	L-36-23	Georeferencing, digitization	L-36-023	Gauss-Krüger
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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Snigirevka"	Joint Staff of Military force	rast	L-36-30	Georeferencing, digitization	L-36-030	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Velikaya Aleksandrovka"	Joint Staff of Military force	rast	L-36-31	Georeferencing, digitization	L-36-031	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Velikaya Lepetikha"	Joint Staff of Military force	rast	L-36-32	Georeferencing, digitization	L-36-032	Gauss-Krüger

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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Verhniy Rogatchik"	Joint Staff of Military force	rast	L-36-33	Georeferencing, digitization	L-36-033	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Veseloje"	Joint Staff of Military force	rast	L-36-34	Georeferencing, digitization	L-36-034	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Mikhailovka"	Joint Staff of Military force	rast	L-36-35	Georeferencing, digitization	L-36-035	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tokmak"	Joint Staff of Military force	rast	L-36-36	Georeferencing, digitization	L-36-036	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Razdelnaya"	Joint Staff of Military force	rast	L-36-37	Georeferencing, digitization	L-36-037	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Petrovka"	Joint Staff of Military force	rast	L-36-38	Georeferencing, digitization	L-36-038	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Beresanka"	Joint Staff of Military force	rast	L-36-39	Georeferencing, digitization	L-36-039	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nikolaev"	Joint Staff of Military force	rast	L-36-40	Georeferencing, digitization	L-36-040	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nikolaev-Eastern part"	Joint Staff of Military force	rast	L-36-41	Georeferencing, digitization	L-36-041	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Antonovka"	Joint Staff of Military force	rast	L-36-42	Georeferencing, digitization	L-36-042	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novaya Kahovka"	Joint Staff of Military force	rast	L-36-43	Georeferencing, digitization	L-36-043	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lubimovka"	Joint Staff of Military force	rast	L-36-44	Georeferencing, digitization	L-36-044	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Niznie Serogozy"	Joint Staff of Military force	rast	L-36-45	Georeferencing, digitization	L-36-045	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ivanovka"	Joint Staff of Military force	rast	L-36-46	Georeferencing, digitization	L-36-046	Gauss–Krüger
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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Priazovskoe"	Joint Staff of Military force	rast	L-36-48	Georeferencing, digitization	L-36-048	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belayevka"	Joint Staff of Military force	rast	L-36-49	Georeferencing, digitization	L-36-049	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Odessa"	Joint Staff of Military force	rast	L-36-50	Georeferencing, digitization	L-36-050	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sychavka"	Joint Staff of Military force	rast	L-36-51	Georeferencing, digitization	L-36-051	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ochakov"	Joint Staff of Military force	rast	L-36-52	Georeferencing, digitization	L-36-052	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belozerka"	Joint Staff of Military force	rast	L-36-53	Georeferencing, digitization	L-36-053	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kherson"	Joint Staff of Military force	rast	L-36-54	Georeferencing, digitization	L-36-054	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novaya Mayachka"	Joint Staff of Military force	rast	L-36-55	Georeferencing, digitization	L-36-055	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chaplinka"	Joint Staff of Military force	rast	L-36-56	Georeferencing, digitization	L-36-056	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novotroickoe"	Joint Staff of Military force	rast	L-36-57	Georeferencing, digitization	L-36-057	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Syvashskoye"	Joint Staff of Military force	rast	L-36-58	Georeferencing, digitization	L-36-058	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kirilovka"	Joint Staff of Military force	rast	L-36-59	Georeferencing, digitization	L-36-059	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Stepanovka-Pervaya"	Joint Staff of Military force	rast	L-36-60	Georeferencing, digitization	L-36-060	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belgorod-Dnestrovskiy"	Joint Staff of Military force	rast	L-36-61	Georeferencing, digitization	L-36-061	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ilichevsk"	Joint Staff of Military force	rast	L-36-62	Georeferencing, digitization	L-36-062	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Spravitskaya"	Joint Staff of Military force	rast	L-36-64	Georeferencing, digitization	L-36-064	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bekhtery"	Joint Staff of Military force	rast	L-36-65	Georeferencing, digitization	L-36-065	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Skadovsk"	Joint Staff of Military force	rast	L-36-66	Georeferencing, digitization	L-36-066	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kalanchak"	Joint Staff of Military force	rast	L-36-67	Georeferencing, digitization	L-36-067	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Armyansk"	Joint Staff of Military force	rast	L-36-68	Georeferencing, digitization	L-36-068	Gauss–Krüger

TOPOGRAPHIC MAPS	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gromovka"	Joint Staff of Military force	rast	L-36-69	Georeferencing, digitization	L-36-069	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Genichesk"	Joint Staff of Military force	rast	L-36-70	Georeferencing, digitization	L-36-070	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novy Azov"	Joint Staff of Military force	rast	L-36-71	Georeferencing, digitization	L-36-071	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tuzly"	Joint Staff of Military force	rast	L-36-73	Georeferencing, digitization	L-36-073	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vysota 8,4"	Joint Staff of Military force	rast	L-36-78	Georeferencing, digitization	L-36-078	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Rasdolnoye"	Joint Staff of Military force	rast	L-36-79	Georeferencing, digitization	L-36-079	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Krasnoperekopsk"	Joint Staff of Military force	rast	L-36-80	Georeferencing, digitization	L-36-080	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dzankoy"	Joint Staff of Military force	rast	L-36-81	Georeferencing, digitization	L-36-081	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Stalnoye"	Joint Staff of Military force	rast	L-36-82	Georeferencing, digitization	L-36-082	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Patamanovo"	Joint Staff of Military force	rast	L-36-83	Georeferencing, digitization	L-36-083	Gauss–Krüger
TOPOGRAPHIC MAPS	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Mayak"	Joint Staff of Military force	rast	L-36-89	Georeferencing, digitization	L-36-089	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chernomorkoe"	Joint Staff of Military force	rast	L-36-90	Georeferencing, digitization	L-36-090	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novoozerskoye"	Joint Staff of Military force	rast	L-36-91	Georeferencing, digitization	L-36-091	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novoselovskoye"	Joint Staff of Military force	rast	L-36-92	Georeferencing, digitization	L-36-092	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novogvardeyskoye"	Joint Staff of Military force	rast	L-36-93	Georeferencing, digitization	L-36-093	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nyznegorskyi"	Joint Staff of Military force	rast	L-36-94	Georeferencing, digitization	L-36-094	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dmytrovka"	Joint Staff of Military force	rast	L-36-95	Georeferencing, digitization	L-36-095	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Schelkino"	Joint Staff of Military force	rast	L-36-96	Georeferencing, digitization	L-36-096	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"ness Uret"	Joint Staff of Military force	rast	L-36-102	Georeferencing, digitization	L-36-102	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Yevpatoriya"	Joint Staff of Military force	rast	L-36-103	Georeferencing, digitization	L-36-103	Gauss–Krüger
TOPOGRAPHIC MAPS	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Saky"	Joint Staff of Military force	rast	L-36-104	Georeferencing, digitization	L-36-104	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gvardeyskoye"	Joint Staff of Military force	rast	L-36-105	Georeferencing, digitization	L-36-105	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belogorsk"	Joint Staff of Military force	rast	L-36-106	Georeferencing, digitization	L-36-106	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Feodosiya"	Joint Staff of Military force	rast	L-36-107	Georeferencing, digitization	L-36-107	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lenino"	Joint Staff of Military force	rast	L-36-108	Georeferencing, digitization	L-36-108	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bakhchsaray"	Joint Staff of Military force	rast	L-36-116	Georeferencing, digitization	L-36-116	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sympheropol"	2	rast	L-36-117	Georeferencing, digitization	L-36-117	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sudak"	Joint Staff of Military force	rast	L-36-118	Georeferencing, digitization	L-36-118	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Shebetovka"	Joint Staff of Military force	rast	L-36-119	Georeferencing, digitization	L-36-119	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sevastopol"	Joint Staff of Military force	rast	L-36-127	Georeferencing, digitization	L-36-127	Gauss–Krüger
TOPOGRAPHIC MAPS	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Putila"	Joint Staff of Military force	rast	L-36-128	Georeferencing, digitization	L-36-128	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Yalta"	Joint Staff of Military force	rast	L-36-129	Georeferencing, digitization	L-36-129	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pokrovskoye"	Joint Staff of Military force	rast	L-37-1	Georeferencing, digitization	L-37-001	Gauss–Krüger

TOPOGRAPHIC MAPS	TO								
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Velikaya Novoselka"	Joint Staff of Military force	rast	L-37-2	Georeferencing, digitization	L-37-002		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kurahovo"	Joint Staff of Military force	rast	L-37-3	Georeferencing, digitization	L-37-003		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Donetks"	Joint Staff of Military force	rast	L-37-4	Georeferencing, digitization	L-37-004		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Amvrosievka"	Joint Staff of Military force	rast	L-37-5	Georeferencing, digitization	L-37-005		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kuybyshevo"	Joint Staff of Military force	rast	L-37-6	Georeferencing, digitization	L-37-006		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Duakovo"	Joint Staff of Military force	rast	L-37-7	Georeferencing, digitization	L-37-007		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Novoshhtinsk"	Joint Staff of Military force	rast	L-37-8	Georeferencing, digitization	L-37-008		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Pology"	Joint Staff of Military force	rast	L-37-13	Georeferencing, digitization	L-37-013		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kuybyshevo"	Joint Staff of Military force	rast	L-37-14	Georeferencing, digitization	L-37-014		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Volnovakha"	Joint Staff of Military force	rast	L-37-15	Georeferencing, digitization	L-37-015		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Donskoye"	Joint Staff of Military force	rast	L-37-16	Georeferencing, digitization	L-37-016		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Komsomolskoye"	Joint Staff of Military force	rast	L-37-17	Georeferencing, digitization	L-37-017		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Matveev Kurgan"	Joint Staff of Military force	rast	L-37-18	Georeferencing, digitization	L-37-018		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Chernigovka"	Joint Staff of Military force	rast	L-37-25	Georeferencing, digitization	L-37-025		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Andreevka"	Joint Staff of Military force	rast	L-37-26	Georeferencing, digitization	L-37-026		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Volodarskoye"	Joint Staff of Military force	rast	L-37-27	Georeferencing, digitization	L-37-027		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Maryupol"	Joint Staff of Military force	rast	L-37-28	Georeferencing, digitization	L-37-028		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Novoazovsk"	Joint Staff of Military force	rast	L-37-29	Georeferencing, digitization	L-37-029		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Prymorsk"	Joint Staff of Military force	rast	L-37-37	Georeferencing, digitization	L-37-037		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Berdansk"	Joint Staff of Military force	rast	L-37-38	Georeferencing, digitization	L-37-038		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Yalta"	Joint Staff of Military force	rast	L-37-39	Georeferencing, digitization	L-37-039		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Naberezhnoye"	Joint Staff of Military force	rast	L-37-49	Georeferencing, digitization	L-37-049		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Berdanskaya kosa"	Joint Staff of Military force	rast	L-37-50	Georeferencing, digitization	L-37-050		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Domachevo"	Joint Staff of Military force	rast	M-34-12	Georeferencing, digitization	M-34-012		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Vlodava"	Joint Staff of Military force	rast	M-34-24	Georeferencing, digitization	M-34-024		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Guscha"	Joint Staff of Military force	rast	M-34-36	Georeferencing, digitization	M-34-036		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Hrubeshuv"	Joint Staff of Military force	rast	M-34-48	Georeferencing, digitization	M-34-048		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Ugnev"	Joint Staff of Military force	rast	M-34-60	Georeferencing, digitization	M-34-060		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Nemyrov"	Joint Staff of Military force	rast	M-34-71	Georeferencing, digitization	M-34-071		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Rava-Russkaya"	Joint Staff of Military force	rast	M-34-72	Georeferencing, digitization	M-34-072		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Pshemysl"	Joint Staff of Military force	rast	M-34-82	Georeferencing, digitization	M-34-082		Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet- "Yavorov"	Joint Staff of Military force	rast	M-34-83	Georeferencing, digitization	M-34-083		Gauss–Krüger

TOPOGRAPHIC MAPS	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gorodok"	Joint Staff of Military force	rast	M-34-84	Georeferencing, digitization	M-34-084	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dobromyl"	Joint Staff of Military force	rast	M-34-94	Georeferencing, digitization	M-34-094	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sambor"	Joint Staff of Military force	rast	M-34-95	Georeferencing, digitization	M-34-095	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Drogobych"	Joint Staff of Military force	rast	M-34-96	Georeferencing, digitization	M-34-096	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Stakchyn"	Joint Staff of Military force	rast	M-34-105	Georeferencing, digitization	M-34-105	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nyznaya Yablonka"	0	rast	M-34-106	Georeferencing, digitization	M-34-106	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Boryslav"	0	rast	M-34-107	Georeferencing, digitization	M-34-107	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Striy"	1.4E+14	rast	M-34-108	Georeferencing, digitization	M-34-108	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Snyna"	Joint Staff of Military force		M-34-117	Georeferencing, digitization	M-34-117	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tury Remety"	Joint Staff of Military force	rast	M-34-118	Georeferencing, digitization	M-34-118	Gauss–Krüger
TOPOGRAPHIC MAPS	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Volovets"	Joint Staff of Military force	rast	M-34-119	Georeferencing, digitization	M-34-119	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vygoda"	Joint Staff of Military force	rast	M-34-120	Georeferencing, digitization	M-34-120	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Uzgorod"	Joint Staff of Military force	rast	M-34-129	Georeferencing, digitization	M-34-129	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Mukachevo"	Joint Staff of Military force	rast	M-34-130	Georeferencing, digitization	M-34-130	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dolgoye"	Joint Staff of Military force	rast	M-34-131	Georeferencing, digitization	M-34-131	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Mezygorye"	Joint Staff of Military force	rast	M-34-132	Georeferencing, digitization	M-34-132	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kishvarda"	Joint Staff of Military force	rast	M-34-141	Georeferencing, digitization	M-34-141	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Beregove"	Joint Staff of Military force	rast	M-34-142	Georeferencing, digitization	M-34-142	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Khust"	Joint Staff of Military force	rast	M-34-143	Georeferencing, digitization	M-34-143	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tyachev"	Joint Staff of Military force	rast	M-34-144	Georeferencing, digitization	M-34-144	Gauss–Krüger
TOPOGRAPHIC MAPS	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Maloryta"	Joint Staff of Military force	rast	M-35-1	Georeferencing, digitization	M-35-001	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Duvin"	Joint Staff of Military force	rast	M-35-2	Georeferencing, digitization	M-35-002	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vyderta"	Joint Staff of Military force	rast	M-35-3	Georeferencing, digitization	M-35-003	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lubeshov"	Joint Staff of Military force	rast	M-35-4	Georeferencing, digitization	M-35-004	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Zarechnoye"	Joint Staff of Military force	rast	M-35-5	Georeferencing, digitization	M-35-005	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Stolin"	Joint Staff of Military force	rast	M-35-6	Georeferencing, digitization	M-35-006	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Rubel"	Joint Staff of Military force	rast	M-35-7	Georeferencing, digitization	M-35-007	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lelchitsy"	Joint Staff of Military force	rast	M-35-9	Georeferencing, digitization	M-35-009	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Staraya Vyzevka"	Joint Staff of Military force	rast	M-35-13	Georeferencing, digitization	M-35-013	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kamen-kachyrsky"	Joint Staff of Military force	rast	M-35-14	Georeferencing, digitization	M-35-014	Gauss–Krüger
GRAPHIC MAPS	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bronitsa"	Joint Staff of Military force	rast	M-35-15	Georeferencing, digitization	M-35-015	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kuznetsovsk"	Joint Staff of Military force	rast	M-35-16	Georeferencing, digitization	M-35-016	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vladimirets"	Joint Staff of Military force	rast	M-35-17	Georeferencing, digitization	M-35-017	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sarny"	Joint Staff of Military force	rast	M-35-18	Georeferencing, digitization	M-35-018	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Stare Selo"	Joint Staff of Military force	rast	M-35-19	Georeferencing, digitization	M-35-019	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Glushkevichy"	Joint Staff of Military force	rast	M-35-20	Georeferencing, digitization	M-35-020	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Slovechno"	Joint Staff of Military force	rast	M-35-21	Georeferencing, digitization	M-35-021	Gauss–Krüger

TOPO	TOPOGRAPHIC MAPS	TOPOGRAPHIC MAPS	TOPOGRAPHIC MAPS	HIC MAPS				
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pershotrvneve"	Joint Staff of Military force	rast	M-35-22	Georeferencing, digitization	M-35-022	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vilcha"	Joint Staff of Military force	rast	M-35-23	Georeferencing, digitization	M-35-023	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dernovichy"	Joint Staff of Military force	rast	M-35-24	Georeferencing, digitization	M-35-024	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Luboml"	Joint Staff of Military force	rast	M-35-25	Georeferencing, digitization	M-35-025	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kovel"	Joint Staff of Military force	rast	M-35-26	Georeferencing, digitization	M-35-026	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Goloby"	Joint Staff of Military force	rast	M-35-27	Georeferencing, digitization	M-35-027	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Manevichy"	Joint Staff of Military force	rast	M-35-28	Georeferencing, digitization	M-35-028	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Stepan"	Joint Staff of Military force	rast	M-35-29	Georeferencing, digitization	M-35-029	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Klesov"	Joint Staff of Military force	rast	M-35-30	Georeferencing, digitization	M-35-030	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Rokytne"	Joint Staff of Military force	rast	M-35-31	Georeferencing, digitization	M-35-031	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"OLevsk"	Joint Staff of Military force	rast	M-35-32	Georeferencing, digitization	M-35-032	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novy Belokrovichy"	Joint Staff of Military force	rast	M-35-33	Georeferencing, digitization	M-35-033	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ovruch"	Joint Staff of Military force	rast	M-35-34	Georeferencing, digitization	M-35-034	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Poleskoe"	Joint Staff of Military force	rast	M-35-35	Georeferencing, digitization	M-35-035	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Martynovichy"	Joint Staff of Military force	rast	M-35-36	Georeferencing, digitization	M-35-036	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novovolynsk"	Joint Staff of Military force	rast	M-35-37	Georeferencing, digitization	M-35-037	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lokachy"	Joint Staff of Military force	rast	M-35-38	Georeferencing, digitization	M-35-038	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lutsk"	Joint Staff of Military force	rast	M-35-39	Georeferencing, digitization	M-35-039	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Olyka"	Joint Staff of Military force	rast	M-35-40	Georeferencing, digitization	M-35-040	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kostopol"	Joint Staff of Military force	rast	M-35-41	Georeferencing, digitization	M-35-041	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pershotravneve"	Joint Staff of Military force	rast	M-35-42	Georeferencing, digitization	M-35-042	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gorodnitsa"	Joint Staff of Military force	rast	M-35-43	Georeferencing, digitization	M-35-043	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Emylchino"	Joint Staff of Military force	rast	M-35-44	Georeferencing, digitization	M-35-044	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Yablonets"	Joint Staff of Military force	rast	M-35-45	Georeferencing, digitization	M-35-045	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Korosten"	Joint Staff of Military force	rast	M-35-46	Georeferencing, digitization	M-35-046	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Malyn"	Joint Staff of Military force	rast	M-35-47	Georeferencing, digitization	M-35-047	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ivankov"	Joint Staff of Military force	rast	M-35-48	Georeferencing, digitization	M-35-048	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chervonograd"	Joint Staff of Military force	rast	M-35-49	Georeferencing, digitization	M-35-049	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gorokhov"	Joint Staff of Military force	rast	M-35-50	Georeferencing, digitization	M-35-050	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Berestechko"	Joint Staff of Military force	rast	M-35-51	Georeferencing, digitization	M-35-051	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dubno"	Joint Staff of Military force	rast	M-35-52	Georeferencing, digitization	M-35-052	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Rovno"	Joint Staff of Military force	rast	M-35-53	Georeferencing, digitization	M-35-053	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Neteshyn"	Joint Staff of Military force	rast	M-35-54	Georeferencing, digitization	M-35-054	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Korets"	Joint Staff of Military force	rast	M-35-55	Georeferencing, digitization	M-35-055	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novograd-Volynskiy"	Joint Staff of Military force	rast	M-35-56	Georeferencing, digitization	M-35-056	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Volodarskyi"	Joint Staff of Military force	rast	M-35-57	Georeferencing, digitization	M-35-057	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chernyhov"	Joint Staff of Military force	rast	M-35-58	Georeferencing, digitization	M-35-058	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Radomysl"	Joint Staff of Military force	rast	M-35-59	Georeferencing, digitization	M-35-059	Gauss–Krüger

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	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gorodok"	Joint Staff of Military force	rast	M-35-102	Georeferencing, digitization	M-35-102	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Deraznya"	Joint Staff of Military force	rast	M-35-103	Georeferencing, digitization	M-35-103	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bar"	Joint Staff of Military force	rast	M-35-104	Georeferencing, digitization	M-35-104	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vinntsa"	Joint Staff of Military force	rast	M-35-105	Georeferencing, digitization	M-35-105	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vinnitsa -East"	Joint Staff of Military force	rast	M-35-106	Georeferencing, digitization	M-35-106	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lipovets"	Joint Staff of Military force	rast	M-35-107	Georeferencing, digitization	M-35-107	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tsybulev"	Joint Staff of Military force	rast	M-35-108	Georeferencing, digitization	M-35-108	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pereginskoye"	Joint Staff of Military force	rast	M-35-109	Georeferencing, digitization	M-35-109	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ivano-Frabkovsk"	Joint Staff of Military force	rast	M-35-110	Georeferencing, digitization	M-35-110	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tlumach"	Joint Staff of Military force	rast	M-35-111	Georeferencing, digitization	M-35-111	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tolstoye"	Joint Staff of Military force	rast	M-35-112	Georeferencing, digitization	M-35-112	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Borschew"	Joint Staff of Military force	rast	M-35-113	Georeferencing, digitization	M-35-113	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kamenets-Podolskyi"	Joint Staff of Military force	rast	M-35-114	Georeferencing, digitization	M-35-114	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novaya Ushitsa"	Joint Staff of Military force	rast	M-35-115	Georeferencing, digitization	M-35-115	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Murovany Kurylovtsy"	Joint Staff of Military force	rast	M-35-116	Georeferencing, digitization	M-35-116	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Shargorod"	Joint Staff of Military force	rast	M-35-117	Georeferencing, digitization	M-35-117	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Tulchyn"	Joint Staff of Military force	rast	M-35-118	Georeferencing, digitization	M-35-118	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gaysin"	Joint Staff of Military force	rast	M-35-119	Georeferencing, digitization	M-35-119	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Hristinovka"	Joint Staff of Military force	rast	M-35-120	Georeferencing, digitization	M-35-120	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bytkov"	Joint Staff of Military force	rast	M-35-121	Georeferencing, digitization	M-35-121	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nadvornaya"	Joint Staff of Military force	rast	M-35-122	Georeferencing, digitization	M-35-122	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kolomiya"	Joint Staff of Military force	rast	M-35-123	Georeferencing, digitization	M-35-123	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Snyatin"	Joint Staff of Military force	rast	M-35-124	Georeferencing, digitization	M-35-124	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Hotin"	Joint Staff of Military force	rast	M-35-125	Georeferencing, digitization	M-35-125	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kalmentsy"	Joint Staff of Military force	rast	M-35-126	Georeferencing, digitization	M-35-126	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sokiryany"	Joint Staff of Military force	rast	M-35-127	Georeferencing, digitization	M-35-127	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Mogilev-Podolskyi"	Joint Staff of Military force	rast	M-35-128	Georeferencing, digitization	M-35-128	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Babchintsy"	Joint Staff of Military force	rast	M-35-129	Georeferencing, digitization	M-35-129	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vapnyarka"	Joint Staff of Military force	rast	M-35-130	Georeferencing, digitization	M-35-130	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Trostyanets"	Joint Staff of Military force	rast	M-35-131	Georeferencing, digitization	M-35-131	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gayvoron"	Joint Staff of Military force	rast	M-35-132	Georeferencing, digitization	M-35-132	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Rahov"	Joint Staff of Military force	rast	M-35-133	Georeferencing, digitization	M-35-133	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vorohta"	Joint Staff of Military force	rast	M-35-134	Georeferencing, digitization	M-35-134	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vyznitsa"	Joint Staff of Military force	rast	M-35-135	Georeferencing, digitization	M-35-135	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chernovtsy"	Joint Staff of Military force	rast	M-35-136	Georeferencing, digitization	M-35-136	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novoselitsa"	Joint Staff of Military force	rast	M-35-137	Georeferencing, digitization	M-35-137	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lipkany"	Joint Staff of Military force	rast	M-35-138	Georeferencing, digitization	M-35-138	Gauss–Krüger

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	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Drokia"	Joint Staff of Military force	rast	M-35-140	Georeferencing, digitization	M-35-140	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Soroki"	Joint Staff of Military force	rast	M-35-141	Georeferencing, digitization	M-35-141	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kamenka"	Joint Staff of Military force	rast	M-35-142	Georeferencing, digitization	M-35-142	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kodyma"	Joint Staff of Military force	rast	M-35-143	Georeferencing, digitization	M-35-143	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Peschanaya"	Joint Staff of Military force	rast	M-35-144	Georeferencing, digitization	M-35-144	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Loyev"	Joint Staff of Military force	rast	M-36-2	Georeferencing, digitization	M-36-002	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Repky"	Joint Staff of Military force	rast	M-36-3	Georeferencing, digitization	M-36-003	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Schors"	Joint Staff of Military force	rast	M-36-4	Georeferencing, digitization	M-36-004	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Krukovka"	Joint Staff of Military force	rast	M-36-5	Georeferencing, digitization	M-36-005	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kholmy"	Joint Staff of Military force	rast	M-36-6	Georeferencing, digitization	M-36-006	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Shostka"	Joint Staff of Military force	rast	M-36-7	Georeferencing, digitization	M-36-007	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gluhov"	Joint Staff of Military force	rast	M-36-8	Georeferencing, digitization	M-36-008	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chervonoye"	Joint Staff of Military force	rast	M-36-9	Georeferencing, digitization	M-36-009	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Prypyat"	Joint Staff of Military force	rast	M-36-13	Georeferencing, digitization	M-36-013	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Komarin"	Joint Staff of Military force	rast	M-36-14	Georeferencing, digitization	M-36-014	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chernihiv"	Joint Staff of Military force	rast	M-36-15	Georeferencing, digitization	M-36-015	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Berezna"	Joint Staff of Military force	rast	M-36-16	Georeferencing, digitization	M-36-016	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Mena"	Joint Staff of Military force	rast	M-36-17	Georeferencing, digitization	M-36-017	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Korop"	Joint Staff of Military force	rast	M-36-18	Georeferencing, digitization	M-36-018	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Krolevets"	Joint Staff of Military force	rast	M-36-19	Georeferencing, digitization	M-36-019	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Putivl"	Joint Staff of Military force	rast	M-36-20	Georeferencing, digitization	M-36-020	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Shalygino"	Joint Staff of Military force	rast	M-36-21	Georeferencing, digitization	M-36-021	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chernobyl"	Joint Staff of Military force	rast	M-36-25	Georeferencing, digitization	M-36-025	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Morovsk"	Joint Staff of Military force	rast	M-36-26	Georeferencing, digitization	M-36-026	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Olishevka"	Joint Staff of Military force	rast	M-36-27	Georeferencing, digitization	M-36-027	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nezyn"	Joint Staff of Military force	rast	M-36-28	Georeferencing, digitization	M-36-028	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Borzna"	Joint Staff of Military force	rast	M-36-29	Georeferencing, digitization	M-36-029	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bahmach"	Joint Staff of Military force	rast	M-36-30	Georeferencing, digitization	M-36-030	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Konotop"	Joint Staff of Military force	rast	M-36-31	Georeferencing, digitization	M-36-031	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Buryn"	Joint Staff of Military force	rast	M-36-32	Georeferencing, digitization	M-36-032	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belopolye"	Joint Staff of Military force	rast	M-36-33	Georeferencing, digitization	M-36-033	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Khoten"	Joint Staff of Military force	rast	M-36-34	Georeferencing, digitization	M-36-034	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sudza"	Joint Staff of Military force	rast	M-36-35	Georeferencing, digitization	M-36-035	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Putila"	Joint Staff of Military force	rast	M-36-36	Georeferencing, digitization	M-36-036	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dymer"	Joint Staff of Military force	rast	M-36-37	Georeferencing, digitization	M-36-037	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Oster"	Joint Staff of Military force	rast	M-36-38	Georeferencing, digitization	M-36-038	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bobrovitsa"	Joint Staff of Military force	rast	M-36-39	Georeferencing, digitization	M-36-039	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nosovka"	Joint Staff of Military force	rast	M-36-40	Georeferencing, digitization	M-36-040	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ichnya"	Joint Staff of Military force	rast	M-36-41	Georeferencing, digitization	M-36-041	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Parafievka"	Joint Staff of Military force	rast	M-36-42	Georeferencing, digitization	M-36-042	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Romny"	Joint Staff of Military force	rast	M-36-43	Georeferencing, digitization	M-36-043	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Nedrigaylov"	Joint Staff of Military force	rast	M-36-44	Georeferencing, digitization	M-36-044	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Zovtnevoe"	Joint Staff of Military force	rast	M-36-45	Georeferencing, digitization	M-36-045	Gauss–Krüger
	Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sumy"	Joint Staff of Military force	rast	M-36-46	Georeferencing, digitization	M-36-046	Gauss–Krüger

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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Krasnopolye"	Joint Staff of Military force	rast	M-36-47	Georeferencing, digitization	M-36-047	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Putila"	Joint Staff of Military force	rast	M-36-48	Georeferencing, digitization	M-36-048	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kiev-West"	Joint Staff of Military force	rast	M-36-49	Georeferencing, digitization	M-36-049	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kiev"	Joint Staff of Military force	rast	M-36-50	Georeferencing, digitization	M-36-050	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Baryshevka"	Joint Staff of Military force	rast	M-36-51	Georeferencing, digitization	M-36-051	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Priluki"	Joint Staff of Military force	rast	M-36-52	Georeferencing, digitization	M-36-052	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Zgurovka"	Joint Staff of Military force	rast	M-36-53	Georeferencing, digitization	M-36-053	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ladan"	Joint Staff of Military force	rast	M-36-54	Georeferencing, digitization	M-36-054	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lohvitsa"	Joint Staff of Military force	rast	M-36-55	Georeferencing, digitization	M-36-055	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gadyach"	Joint Staff of Military force	rast	M-36-56	Georeferencing, digitization	M-36-056	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lebedin"	Joint Staff of Military force	rast	M-36-57	Georeferencing, digitization	M-36-057	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Trostyanets"	Joint Staff of Military force	rast	M-36-58	Georeferencing, digitization	M-36-058	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Velykaya Pisarevka"	Joint Staff of Military force	rast	M-36-59	Georeferencing, digitization	M-36-059	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Grayvoron"	Joint Staff of Military force	rast	M-36-60	Georeferencing, digitization	M-36-060	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Vasylkow"	Joint Staff of Military force	rast	M-36-61	Georeferencing, digitization	M-36-061	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Obuhov"	Joint Staff of Military force	rast	M-36-62	Georeferencing, digitization	M-36-062	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pereyaslav Hmelnitskyi"	Joint Staff of Military force	rast	M-36-63	Georeferencing, digitization	M-36-063	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Yagotin"	Joint Staff of Military force	rast	M-36-64	Georeferencing, digitization	M-36-064	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Grebenska"	Joint Staff of Military force	rast	M-36-65	Georeferencing, digitization	M-36-065	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Piryatin"	Joint Staff of Military force	rast	M-36-66	Georeferencing, digitization	M-36-066	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lubny"	Joint Staff of Military force	rast	M-36-67	Georeferencing, digitization	M-36-067	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kamysnya"	Joint Staff of Military force	rast	M-36-68	Georeferencing, digitization	M-36-068	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Zenkov"	Joint Staff of Military force	rast	M-36-69	Georeferencing, digitization	M-36-069	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Ahtyrka"	Joint Staff of Military force	rast	M-36-70	Georeferencing, digitization	M-36-070	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Krasnokutsk"	Joint Staff of Military force	rast	M-36-71	Georeferencing, digitization	M-36-071	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bogoduhov"	Joint Staff of Military force	rast	M-36-72	Georeferencing, digitization	M-36-072	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belaya Cerkov"	Joint Staff of Military force	rast	M-36-73	Georeferencing, digitization	M-36-073	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kagarlyk"	Joint Staff of Military force	rast	M-36-74	Georeferencing, digitization	M-36-074	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kanyev"	Joint Staff of Military force	rast	M-36-75	Georeferencing, digitization	M-36-075	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Gelmyazov"	Joint Staff of Military force	rast	M-36-76	Georeferencing, digitization	M-36-076	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Drabov"	Joint Staff of Military force	rast	M-36-77	Georeferencing, digitization	M-36-077	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Orzytsa"	Joint Staff of Military force	rast	M-36-78	Georeferencing, digitization	M-36-078	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Horol"	Joint Staff of Military force	rast	M-36-79	Georeferencing, digitization	M-36-079	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Myrgorod"	Joint Staff of Military force	rast	M-36-80	Georeferencing, digitization	M-36-080	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Shyshaky"	Joint Staff of Military force	rast	M-36-81	Georeferencing, digitization	M-36-081	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dikanka"	Joint Staff of Military force	rast	M-36-82	Georeferencing, digitization	M-36-082	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kolomak"	Joint Staff of Military force	rast	M-36-83	Georeferencing, digitization	M-36-083	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lubotin"	Joint Staff of Military force	rast	M-36-84	Georeferencing, digitization	M-36-084	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Stavische"	Joint Staff of Military force	rast	M-36-85	Georeferencing, digitization	M-36-085	Gauss-Krüger	
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Boguslav"	Joint Staff of Military force	rast	M-36-86	Georeferencing, digitization	M-36-086	Gauss-Krüger	

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Ukraine	Topographic Map, 1:100.000, Map Sheet- "Korsun-Shevchenkoskyi"	Joint Staff of Military force	rast	M-36-87	Georeferencing, digitization	M-36-087		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Russkaya Polayana"	Joint Staff of Military force	rast	M-36-88	Georeferencing, digitization	M-36-088		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Cherkassy"	Joint Staff of Military force	rast	M-36-89	Georeferencing, digitization	M-36-089		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Obolon"	Joint Staff of Military force	rast	M-36-90	Georeferencing, digitization	M-36-090		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Globino"	Joint Staff of Military force	rast	M-36-91	Georeferencing, digitization	M-36-091		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Ostapye"	Joint Staff of Military force	rast	M-36-92	Georeferencing, digitization	M-36-092		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Reshetilovka"	Joint Staff of Military force	rast	M-36-93	Georeferencing, digitization	M-36-093		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Krasnograd"	Joint Staff of Military force	rast	M-36-95	Georeferencing, digitization	M-36-095		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Chapayev"	Joint Staff of Military force	rast	M-36-96	Georeferencing, digitization	M-36-096		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Zashkiv"	Joint Staff of Military force	rast	M-36-97	Georeferencing, digitization	M-36-097		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Zvenigorodka"	Joint Staff of Military force	rast	M-36-98	Georeferencing, digitization	M-36-098		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Shpola"	Joint Staff of Military force	rast	M-36-99	Georeferencing, digitization	M-36-099		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Smela"	Joint Staff of Military force	rast	M-36-100	Georeferencing, digitization	M-36-100		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kamenka"	Joint Staff of Military force	rast	M-36-101	Georeferencing, digitization	M-36-101		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Chigirin"	Joint Staff of Military force	rast	M-36-102	Georeferencing, digitization	M-36-102		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Kremenchug"	Joint Staff of Military force	rast	M-36-103	Georeferencing, digitization	M-36-103		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Komsomolsk"	Joint Staff of Military force	rast	M-36-104	Georeferencing, digitization	M-36-104		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "KObelyaky"	Joint Staff of Military force	rast	M-36-105	Georeferencing, digitization	M-36-105		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Nehvoroscha"	Joint Staff of Military force	rast	M-36-106	Georeferencing, digitization	M-36-106		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Pereschepino"	Joint Staff of Military force	rast	M-36-107	Georeferencing, digitization	M-36-107		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Sahnovschina"	Joint Staff of Military force	rast	M-36-108	Georeferencing, digitization	M-36-108		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Uman"	Joint Staff of Military force	rast	M-36-109	Georeferencing, digitization	M-36-109		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Talnoye"	Joint Staff of Military force	rast	M-36-110	Georeferencing, digitization	M-36-110		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Mokraya Kaligorka"	Joint Staff of Military force	rast	M-36-111	Georeferencing, digitization	M-36-111		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Novomirgorod"	Joint Staff of Military force	rast	M-36-112	Georeferencing, digitization	M-36-112		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Aleksandrovka"	Joint Staff of Military force	rast	M-36-113	Georeferencing, digitization	M-36-113		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Znamenka"	Joint Staff of Military force	rast	M-36-114	Georeferencing, digitization	M-36-114		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Aleksandriya"	Joint Staff of Military force	rast	M-36-115	Georeferencing, digitization	M-36-115		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Lihovka"	Joint Staff of Military force	rast	M-36-116	Georeferencing, digitization	M-36-116		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Carychanka"	Joint Staff of Military force	rast	M-36-117	Georeferencing, digitization	M-36-117		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Petrikovka"	Joint Staff of Military force	rast	M-36-118	Georeferencing, digitization	M-36-118		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Gubnikha"	Joint Staff of Military force	rast	M-36-119	Georeferencing, digitization	M-36-119		Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet- "Popasnoye"	Joint Staff of Military force	rast	M-36-120	Georeferencing, digitization	M-36-120		Gauss-Krüger

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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Golovanevsk"	Joint Staff of Military force	rast	M-36-121	Georeferencing, digitization	M-36-121	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novoarhangelsk"	Joint Staff of Military force	rast	M-36-122	Georeferencing, digitization	M-36-122	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dobrovelichkovka"	Joint Staff of Military force	rast	M-36-123	Georeferencing, digitization	M-36-123	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Malaya Viska"	Joint Staff of Military force	rast	M-36-124	Georeferencing, digitization	M-36-124	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kirovograd"	Joint Staff of Military force	rast	M-36-125	Georeferencing, digitization	M-36-125	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novaya Praga"	Joint Staff of Military force	rast	M-36-126	Georeferencing, digitization	M-36-126	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Aleksandriya - South"	Joint Staff of Military force	rast	M-36-127	Georeferencing, digitization	M-36-127	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Zeltye Vody"	Joint Staff of Military force	rast	M-36-128	Georeferencing, digitization	M-36-128	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Verhovcevo"	Joint Staff of Military force	rast	M-36-129	Georeferencing, digitization	M-36-129	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dneprodzrinsk"	Joint Staff of Military force	rast	M-36-130	Georeferencing, digitization	M-36-130	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dnepropetrovsk"	Joint Staff of Military force	rast	M-36-131	Georeferencing, digitization	M-36-131	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pavlograd"	Joint Staff of Military force	rast	M-36-132	Georeferencing, digitization	M-36-132	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pervomaysk"	Joint Staff of Military force	rast	M-36-134	Georeferencing, digitization	M-36-134	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pomoshnaya"	Joint Staff of Military force	rast	M-36-135	Georeferencing, digitization	M-36-135	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novoukrainka"	Joint Staff of Military force	rast	M-36-136	Georeferencing, digitization	M-36-136	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bobrinets"	Joint Staff of Military force	rast	M-36-137	Georeferencing, digitization	M-36-137	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dolinskaya"	Joint Staff of Military force	rast	M-36-138	Georeferencing, digitization	M-36-138	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Mirovskoye"	Joint Staff of Military force	rast	M-36-139	Georeferencing, digitization	M-36-139	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kryvoy rog"	Joint Staff of Military force	rast	M-36-140	Georeferencing, digitization	M-36-140	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kudeshevka"	Joint Staff of Military force	rast	M-36-141	Georeferencing, digitization	M-36-141	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Solenoye"	Joint Staff of Military force	rast	M-36-142	Georeferencing, digitization	M-36-142	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Sinelnikovo"	Joint Staff of Military force	rast	M-36-144	Georeferencing, digitization	M-36-144	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Borisovka"	Joint Staff of Military force	rast	M-37-49	Georeferencing, digitization	M-37-049	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belgorod"	Joint Staff of Military force	rast	M-37-50	Georeferencing, digitization	M-37-050	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bolshetrickoe"	Joint Staff of Military force	rast	M-37-51	Georeferencing, digitization	M-37-051	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Volokonovka"	Joint Staff of Military force	rast	M-37-52	Georeferencing, digitization	M-37-052	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Dergachi"	Joint Staff of Military force	rast	M-37-61	Georeferencing, digitization	M-37-061	Gauss-Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Volchansk"	Joint Staff of Military force	rast	M-37-62	Georeferencing, digitization	M-37-062	Gauss-Krüger

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Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Velikiy Burluk"	Joint Staff of Military force	rast	M-37-63	Georeferencing, digitization	M-37-063	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Olhovatka"	Joint Staff of Military force	rast	M-37-64	Georeferencing, digitization	M-37-064	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Valuiki"	Joint Staff of Military force	rast	M-37-65	Georeferencing, digitization	M-37-065	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bely Kolodez"	Joint Staff of Military force	rast	M-37-66	Georeferencing, digitization	M-37-066	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kharkov"	Joint Staff of Military force	rast	M-37-73	Georeferencing, digitization	M-37-073	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chuguev"	Joint Staff of Military force	rast	M-37-74	Georeferencing, digitization	M-37-074	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Shevchenkovo"	Joint Staff of Military force	rast	M-37-75	Georeferencing, digitization	M-37-075	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kupyansk"	Joint Staff of Military force	rast	M-37-76	Georeferencing, digitization	M-37-076	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Troitskoe"	Joint Staff of Military force	rast	M-37-77	Georeferencing, digitization	M-37-077	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Rovenki"	Joint Staff of Military force	rast	M-37-78	Georeferencing, digitization	M-37-078	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belolutsk"	Joint Staff of Military force	rast	M-37-79	Georeferencing, digitization	M-37-079	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kantemirovka"	Joint Staff of Military force	rast	M-37-80	Georeferencing, digitization	M-37-080	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Pervomayskiy"	Joint Staff of Military force	rast	M-37-85	Georeferencing, digitization	M-37-085	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Balakleya"	Joint Staff of Military force	rast	M-37-86	Georeferencing, digitization	M-37-086	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Savintsy"	Joint Staff of Military force	rast	M-37-87	Georeferencing, digitization	M-37-087	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kupansk-Uzlovoy"	Joint Staff of Military force	rast	M-37-88	Georeferencing, digitization	M-37-088	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Svatovo"	Joint Staff of Military force	rast	M-37-89	Georeferencing, digitization	M-37-089	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belokurakino"	Joint Staff of Military force	rast	M-37-90	Georeferencing, digitization	M-37-090	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Novopskov"	Joint Staff of Military force	rast	M-37-91	Georeferencing, digitization	M-37-091	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Markovka"	Joint Staff of Military force	rast	M-37-92	Georeferencing, digitization	M-37-092	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Chertkovo"	Joint Staff of Military force	rast	M-37-93	Georeferencing, digitization	M-37-093	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Krasnopavlovka"	Joint Staff of Military force	rast	M-37-97	Georeferencing, digitization	M-37-097	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Petrovskoe"	Joint Staff of Military force	rast	M-37-98	Georeferencing, digitization	M-37-098	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Izum"	Joint Staff of Military force	rast	M-37-99	Georeferencing, digitization	M-37-099	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Slavyanogorsk"	Joint Staff of Military force	rast	M-37-100	Georeferencing, digitization	M-37-100	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Rubeznoe"	Joint Staff of Military force	rast	M-37-101	Georeferencing, digitization	M-37-101	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Starobelsk"	Joint Staff of Military force	rast	M-37-102	Georeferencing, digitization	M-37-102	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Yevsug"	Joint Staff of Military force	rast	M-37-103	Georeferencing, digitization	M-37-103	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Belovodsk"	Joint Staff of Military force	rast	M-37-104	Georeferencing, digitization	M-37-104	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Malchevskaya"	Joint Staff of Military force	rast	M-37-105	Georeferencing, digitization	M-37-105	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lozovaya"	Joint Staff of Military force	rast	M-37-106	Georeferencing, digitization	M-37-106	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Bliznuky"	Joint Staff of Military force	rast	M-37-110	Georeferencing, digitization	M-37-110	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Barvenkovo"	Joint Staff of Military force	rast	M-37-111	Georeferencing, digitization	M-37-111	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Kramatorsk"	Joint Staff of Military force	rast	M-37-112	Georeferencing, digitization	M-37-112	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Lisichansk"	Joint Staff of Military force	rast	M-37-113	Georeferencing, digitization	M-37-113	Gauss–Krüger
Ukraine	Topographic Map, 1:100.000, Map Sheet-	"Zolotoye"	Joint Staff of Military force	rast	M-37-114	Georeferencing, digitization	M-37-114	Gauss–Krüger

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Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°25', 27°07'30"	unknown	rast		digitization	12OR.tif		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°35', 27°37'30"	unknown	rast		digitization	K-35-056-1#.img		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°35', 27°22'30"	unknown	rast		digitization	K-35-055-2#.img		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°25', 27°22'30"	unknown	rast		digitization	K-35-055-4#.img		Pulkovo 1942(58)
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Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°45', 27°37'30"	unknown	rast		digitization	K-35-044-3#.img		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°45', 27°52'30"	unknown	rast		digitization	K-35-044-4#.img		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°15', 27°22'30"	unknown	rast		digitization	K-35-067-2#.img		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°15', 27°37'30"	unknown	rast		digitization	K-35-068-1#.img		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°15', 27°52'30"	unknown	rast		digitization	K-35-068-2#.img		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°05', 27°37'30"	unknown	rast		digitization	K-35-068-4#.img		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°05', 27°52'30"	unknown	rast		digitization	11V		Pulkovo 1942(58)
Bulgaria	Topographic Map BURGAS region, 1:50.000 Map Sheet coord 42°25', 27°07'30"	unknown	rast		digitization	K-35-055-3#.img		Pulkovo 1942(58)
Turkey	Topographic Maps for Samsun 1:25,000	MTA (General Directorate of Mineral Research and Exploration)	vec		Georeferencing, digitization	*.tab / *.shp		
Turkey	ASTER DEM	ASTER GDEM is the property of METI and NASA	rast					
Turkey	Topographic Maps for Tekirdag 1:25,000	MTA (General Directorate of Mineral Research and Exploration)	vec		Georeferencing, digitization	*.tab / *.shp		
Romania	topographic maps 1:50,000 scale ,1980 - 1981	Military Topographic Direction	rast		Georeferencing			stereo'70
Romania	topographic maps 1:25,000 scale ,1980 - 1982	Military Topographic Direction	rast		Georeferencing			stereo'70
Romania	SRTM90	National Aeronautics and Space Administration (NASA)	rast			srtm_SE_RO.tif		reprojected in Stereo'70
Greece	Topographic Map, 1:50.000, Map Sheet- MS "Ano Poroia"	Greek Military Geographical Service (MGS)	rast	fx309	Georeferencing, digitization	Poroia.jpg		UTM Zone 34N
Greece	Topographic Map, 1:50.000, MS "Neon Petritsion"	MGS	rast	fx240	Georeferencing, digitization	Petritsi.jpg		UTM Zone 34N
Greece	Topographic Map, 1:50.000, Map Sheet- MS "Achladochorion"	MGS	rast	fx60	Georeferencing, digitization	Achladochori.jpg		UTM Zone 34N
Greece	Topographic Map, 1:50.000, MS "Kato Nevrokopion"	MGS	rast	fx314	Georeferencing, digitization	Nevrokopi.jpg		UTM Zone 34N
Greece	Topographic Map, 1:50.000, Map Sheet- MS "Kerkini"	MGS	rast	fx157	Georeferencing, digitization	Kerkini.jpg		UTM Zone 34N
Greece	Topographic Map, 1:50.000, MS "Sidhirokastron"	MGS	rast	fx336	Georeferencing, digitization	Sidhirokaastro.jpg		UTM Zone 34N

TOPOGRAPHIC MAPS

	Greece	Topographic Map, 1:50.000, MS "Serrai"	MGS	rast	fx333	Georeferencing, digitization	Serrai.jpg	UTM Zone 34N
	Greece	Topographic Map, 1:50.000, MS "Prosotsani"	MGS	rast	fx157	Georeferencing, digitization	Prosotsani.jpg	UTM Zone 34N
	Greece	Topographic Map, 1:50.000, MS "Komotini"	MGS	rast	fx157	Georeferencing, digitization	Komotini.jpg	UTM Zone 34N
	Greece	Topographic Map, 1:50.000, MS "Ano Poroia"	SciNetNatHaz	vec		Digitization	Poroia.shp	GGRS87
	Greece	Topographic Map, 1:50.000, MS "Neon Petritsion"	SciNetNatHaz	vec		Digitization	Petritsi.shp	GGRS87
	Greece	Topographic Map, 1:50.000, MS "Achladochorion"	SciNetNatHaz	vec		Digitization	Achladochori.shp	GGRS87
	Greece	Topographic Map, 1:50.000, MS "Kato Nevrokopion"	SciNetNatHaz	vec		Digitization	Nevrokopi.shp	GGRS87
	Greece	Topographic Map, 1:50.000, MS "Kerkini"	SciNetNatHaz	vec		Digitization	Kerkini.shp	GGRS87
	Greece	Topographic Map, 1:50.000, MS "Sidhirokastron"	SciNetNatHaz	vec		Digitization	Sidhirokaastro.shp	GGRS87
	Greece	Topographic Map, 1:50.000, MS "Serrai"	SciNetNatHaz	vec		Digitization	Serrai.shp	GGRS87
	Greece	Topographic Map, 1:50.000, MS "Prosotsani"	SciNetNatHaz	vec		Digitization	Prosotsani.shp	GGRS87
	Greece	Topographic Map, 1:50.000, MS "Komotini"	SciNetNatHaz	vec		Digitization	Komotini.shp	GGRS87
	Greece	Elevation Points	MGS	tab		Digitization	elev_points.shp	GGRS87
	Greece	Topographic Map, 1:5.000	MGS	rast	3433_7	Georeferencing, digitization	3433_7.jpg	Local HATT, transformed to GGRS87
	Greece	Topographic Map, 1:5.000	MGS	rast	3443_1	Georeferencing, digitization	3443_1.jpg	Local HATT, transformed to GGRS88
	Greece	Topographic Map, 1:5.000	SciNetNatHaz	vec		digitization	3433_7.shp	Local HATT, transformed to GGRS89
	Greece	Topographic Map, 1:5.000	SciNetNatHaz	vec		digitization	3443_1.shp	Local HATT, transformed to GGRS90
	Greece	Topographic Map (contours) of the entire area, 1:50.000	SciNetNatHaz	vec		Merging all vector "topo" files	Serres_contours_50k.shp	GGRS87
	Greece	SRTM90	National Aeronautics and Space Administration (NASA)	rast			srtm_SE_GR.tif	GGRS87
Landslice	Ukraine	Map and geological records of abrasion-accumulative estuary shore: Dniester estuary, 1:100 000	DERZHHYDROGRAPHIA State Enterprise	rast		Georeferencing, digitizationjpg	Gauss-Krüger
	Ukraine	Map and geological records of abrasion-landslid shore: Odessa - Ochakov, 1:100 000	DERZHHYDROGRAPHIA State Enterprise	rast		Georeferencing, digitizationjpg	Gauss-Krüger
	Ukraine	Map of geomorfological zoning and relief roughness, Odessa, Mykolaiv and Kherson area, 1:250 000	Odessa I.I.Mechnikov National University	rast		Georeferencing, digitizationjpg	Gauss-Krüger
	Ukraine	General scheme of landslide and shore protection measures on the Black Sea coast of the Ukraine, 1:200 000 (8 sheets)		rast		Georeferencing, digitizationjpg	Gauss-Krüger
Landslice	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-35-XXIII, XXIX "Izmail, Tulcha"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XXIII, XXIX	Georeferencing, digitization	L-35-XXIII, XXIX	Gauss-Krüger
	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-35-XXIV, XXX "Kiliya, Sulina"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XXIV, XXX	Georeferencing, digitization	L-35-XXIV, XXX	Gauss-Krüger
	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-35-XVIII "Kaushani"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XVIII	Georeferencing, digitization	L-35-XVIII	Gauss-Krüger
	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-36-XIII, XIX "Odessa, Tuzli"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XIII, XIX	Georeferencing, digitization	L-36-XIII, XIX	Gauss-Krüger

Landslice	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-36-VII "Razdelnaya"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-VII	Georeferencing, digitization	L-36-VII	Gauss–Krüger
	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-36-VIII "Novaya Odessa"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-VIII	Georeferencing, digitization	L-36-VIII	Gauss–Krüger
	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-36-XIV "Ochakov"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XIV	Georeferencing, digitization	L-36-XIV	Gauss–Krüger
	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-36-IX "Mykolaiv"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-IX	Georeferencing, digitization	L-36-IX	Gauss–Krüger
	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-36-XV "Kherson"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XV	Georeferencing, digitization	L-36-XV	Gauss–Krüger
Landslice	Ukraine	Geological map of the Quaternary deposits, 1:200 000, Map Sheet L-36-XVI "Chaplinka"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XVI	Georeferencing, digitization	L-36-XVI	Gauss–Krüger
	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-35-XXIII, XXIX "Izmail, Tulcha"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XXIII, XXIX	Georeferencing, digitization	L-35-XXIII, XXIX	Gauss–Krüger
	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-35-XXIV, XXX "Kiliya, Sulina"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XXIV, XXX	Georeferencing, digitization	L-35-XXIV, XXX	Gauss–Krüger
Landslice	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-35-XVIII "Kaushani"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XVIII "	Georeferencing, digitization	L-35-XVIII "	Gauss–Krüger
	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-36-XIII, XIX "Odessa, Tuzli"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XIII, XIX	Georeferencing, digitization	L-36-XIII, XIX	Gauss–Krüger
	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-36-VII "Razdelnaya"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-VII	Georeferencing, digitization	L-36-VII	Gauss–Krüger
	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-36-VIII "Novaya Odessa"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-VIII	Georeferencing, digitization	L-36-VIII	Gauss–Krüger
	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-36-XIV "Ochakov"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XIV	Georeferencing, digitization	L-36-XIV	Gauss–Krüger
Landslice	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-36-IX "Mykolaiv"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-IX	Georeferencing, digitization	L-36-IX	Gauss–Krüger
	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-36-XV "Kherson"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XV	Georeferencing, digitization	L-36-XV	Gauss–Krüger

Landslice	Ukraine	Geological and ecological Map, 1:200 000, Map Sheet L-36-XVI "Chaplinka"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XVI	Georeferencing, digitization	L-36-XVI	Gauss-Krüger	
	Turkey	Landslide Hazard Maps for Samsun and Tekirdag	1:25,000 MTA (General Directorate of Mineral Research and Exploration)	vec		Georeferencing, digitization	*.tab / *.shp		
	Moldova	Landslides of Chisinau city scale 1:10 000	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	Landslide_Chisinau	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 L35_4, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_4	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 L35_5, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_5	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 L35_6, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_6	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 L35_11, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_10	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 L35_12, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_11	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 L35_17, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_12	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 L35_18, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_17	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 L35_23, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_18	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 M35_33, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideL35_23	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 M35_34, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideM35_33	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 M35_35, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideM35_34	Gauss-Krüger	
	Moldova	Landslide density of Republic of Moldova, scale 1:200000 M35_35, redaction 2004	Institute of Geology and Seismology (IGS)	rast		Georeferencing, digitization	LandeslideM35_35	Gauss-Krüger	
	C MAPS	Ukraine	Geologic Map, 1:200 000, Map Sheet L-35-XXIII, XXIX "Izmail, Tulcha"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XXIII, XXIX	Georeferencing, digitization	L-35-XXIII, XXIX	Gauss-Krüger
		Ukraine	Geologic Map, 1:200 000, Map Sheet L-35-XXIV, XXX "Kiliya, Sulina"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XXIV, XXX	Georeferencing, digitization	L-35-XXIV, XXX	Gauss-Krüger
Ukraine		Geologic Map, 1:200 000, Map Sheet L-35-XVIII "Kaushani"	State regional geological enterprise Prichernomorgeologiya	rast	L-35-XVIII	Georeferencing, digitization	L-35-XVIII	Gauss-Krüger	
Ukraine		Geologic Map, 1:200 000, Map Sheet L-36-XIII, XIX "Odessa, Tuzli"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XIII, XIX	Georeferencing, digitization	L-36-XIII, XIX	Gauss-Krüger	
Ukraine		Geologic Map, 1:200 000, Map Sheet L-36-VII "Razdelnaya"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-VII	Georeferencing, digitization	L-36-VII	Gauss-Krüger	

GEOLOGI	Ukraine	Geologic Map, 1:200 000, Map Sheet L-36-VIII "Novaya Odessa"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-VIII	Georeferencing, digitization	L-36-VIII	Gauss–Krüger
	Ukraine	Geologic Map, 1:200 000, Map Sheet L-36-XIV "Ochakov"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XIV	Georeferencing, digitization	L-36-XIV	Gauss–Krüger
	Ukraine	Geologic Map, 1:200 000, Map Sheet L-36-IX "Mykolaiv"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-IX	Georeferencing, digitization	L-36-IX	Gauss–Krüger
	Ukraine	Geologic Map, 1:200 000, Map Sheet L-36-XV "Kherson"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XV	Georeferencing, digitization	L-36-XV	Gauss–Krüger
	Ukraine	Geologic Map, 1:200 000, Map Sheet L-36-XVI "Chaplinka"	State regional geological enterprise Prichernomorgeologiya	rast	L-36-XVI	Georeferencing, digitization	L-36-XVI	Gauss–Krüger
GEOLOGIC MAPS	Romania	Geologic Map, 1:200.000, Map Sheet- MS "Covasna L-35-XXI"	RIG, provided by geo-spatial.org	rast		Georeferencing, digitization	Covasna_Geology.tif	reprojected from Gauss-Kruger in Stereo'70
	Romania	Geologic Map, 1:200.000, Map Sheet- MS " Ploiesti L-35-XXVII"	RIG, provided by geo-spatial.org	rast		Georeferencing, digitization	Ploiesti_Geology.tif	reprojected from Gauss-Kruger in Stereo'70
	Romania	Geologic Map, 1:200.000, Map Sheet- MS " Focsani L-35-XXII"	RIG, provided by geo-spatial.org	rast		Georeferencing, digitization	Focsani_Geology.tif	reprojected from Gauss-Kruger in Stereo'70
	Romania	Geologic Map, 1:200.000, Map Sheet- MS "Braila L-35-XXVIII"	RIG, provided by geo-spatial.org	rast		Georeferencing, digitization	Braila_Geology.tif	reprojected from Gauss-Kruger in Stereo'70
	Romania	Geologic Map, 1:200.000, Map Sheet- MS " Tulcea L-35-XXIX"	RIG, provided by geo-spatial.org	rast		Georeferencing, digitization	Tulcea_Geology.tif	reprojected from Gauss-Kruger in Stereo'70
	Romania	Geologic Map, 1:200.000, Map Sheet- MS "Sulina L-35-XXX"	RIG, provided by geo-spatial.org	rast		Georeferencing, digitization	Sulina_Geology.tif	reprojected from Gauss-Kruger in Stereo'70
	Romania	Geologic Map, 1:200.000, Map Sheet- MS "Constanta L-35-XXXV"	RIG, provided by geo-spatial.org	rast		Georeferencing, digitization	Constanta_Geology.tif	reprojected from Gauss-Kruger in Stereo'70
	Romania	Geologic Map, 1:200.000, Map Sheet- MS " Mangalia K-35-V"	RIG, provided by geo-spatial.org	rast		Georeferencing, digitization	Mangalia_Geology.tif	reprojected from Gauss-Kruger in Stereo'70
	Turkey	Geologic maps for Samsun 1:25.000	MTA (General Directorate of Mineral Research and Exploration)	vec		Georeferencing, digitization	*.tab / *.shp	
GEOLOGIC MAPS	Turkey	Geologic maps for Tekirdag 1:25.000	MTA (General Directorate of Mineral Research and Exploration)	vec		Georeferencing, digitization	*.tab / *.shp	
	Turkey	Geologic Map, 1:500,000 (Samsun) ,Map Sheet- MS "Samsun"	MTA (General Directorate of Mineral Research and Exploration)	rast		Georeferencing		
	Turkey	Geologic Map, 1:500,000 (Tekirdag) ,Map Sheet- MS "Istanbul"	MTA (General Directorate of Mineral Research and Exploration)	rast		Georeferencing		
	Turkey	Geologic Map, 1:500,000 (Istanbul) ,Map Sheet- MS "Istanbul"	MTA (General Directorate of Mineral Research and Exploration)	rast		Georeferencing		

GEOLOGIC MAPS

Turkey	Boring Map For Samsun and Tekirdag 1:25,000	KOERI	vec	Georeferencing, digitization	*.tab / *.shp	
Greece	Geologic Map, 1:50.000, Map Sheet- MS "Ano Poroia"	Institute of Geologic & Mineral Exploration (IGME)	rast	Georeferencing, digitization	Poroia_Geology.jpg	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, MS "Neon Petritsion"	IGME	rast	Georeferencing	Neon Petritsion_Geology.jpg	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, MS "Achladochorion"	IGME	rast	Georeferencing	Achladochori_Geology.shp	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, MS "Kato Nevrokopion"	IGME	rast	Georeferencing	Nevrokopi_Geology.jpg	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, MS "Kerkini"	IGME	rast	Georeferencing	Kerkini_Geology.jpg	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, MS "Sidhirokastron"	IGME	rast	Georeferencing	Sidhirokastron_Geology.jpg	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, MS "Serrai"	IGME	rast	Georeferencing	Serrai_Geology.jpg	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, MS "Prosotsani"	IGME	rast	Georeferencing	Prosotsani_Geology.jpg	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, MS "Komotini"	IGME	rast	Georeferencing	Komotini_Geology.jpg	reprojected from TM in GGRS87
Greece	Geologic Map, 1:50.000, Map Sheet- MS "Ano Poroia"	SciNetNatHaz	vec	Digitization	Poroia_Geology.shp	GGRS87
Greece	Geologic Map, 1:50.000, MS "Neon Petritsion"	SciNetNatHaz	vec	Digitization	Petritsi_Geology.shp	GGRS87
Greece	Geologic Map, 1:50.000, MS "Achladochorion"	SciNetNatHaz	vec	Digitization	Achladochori_Geology.shp	GGRS87
Greece	Geologic Map, 1:50.000, MS "Kato Nevrokopion"	SciNetNatHaz	vec	Digitization	Nevrokopi_Geology.shp	GGRS87
Greece	Geologic Map, 1:50.000, MS "Kerkini"	SciNetNatHaz	vec	Digitization	Kerkini_Geology.shp	GGRS87
Greece	Geologic Map, 1:50.000, MS "Sidhirokastron"	SciNetNatHaz	vec	Digitization	Sidhirokastron_Geology.shp	GGRS87
Greece	Geologic Map, 1:50.000, MS "Serrai"	SciNetNatHaz	vec	Digitization	Serrai_Geology.shp	GGRS87
Greece	Geologic Map, 1:50.000, MS "Prosotsani"	SciNetNatHaz	vec	Digitization	Prosotsani_Geology.s	GGRS87
Greece	Geologic Map, 1:50.000, MS "Komotini"	SciNetNatHaz	vec	Digitization	Komotini_Geology.shp	GGRS87
Greece	Geologic Map of the entire area, 1:50.000	SciNetNatHaz	vec	Merging all vector "Geology" files	Geology_Serres_50k.shp	GGRS87
Greece	Hydro-geologic Map of the entire area, 1:50.000	SciNetNatHaz	vec	From the respective Geologic Map	Geology_Serres_50k.shp	GGRS87
Greece	Tectonic Map of the entire area, 1:50.000	SciNetNatHaz	vec	Merging all vector "Geology" files	tectonic_Serres_50k.shp	GGRS87
Moldova	Geologic map, 1:200.000, L35_4, redaction 1988,	Geological Agency of Moldova	rast	Georeferencing, digitization	Geo L35_4.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_4, redaction 1988,	Institute of Geology and Seismology (IGS)	tab	Georeferencing, digitization	Geo L35_4.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_5, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo L35_5.jpg	Gauss-Krüger

GEOLOGIC MAPS

Moldova	Geologic map, 1:200.000, L35_5, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo L35_5.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_6, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo L35_6.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_6, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo L35_6.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_10, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo L35_10.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_10, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo L35_10.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_11, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo L35_11.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_11, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo L35_11.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_12, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo L35_12.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_12, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo L35_12.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_17, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo L35_17.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_17, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo L35_17.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_18, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo L35_18.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_18, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo L35_18.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_23, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo L35_23.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, L35_23, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo L35_23.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, M35_33, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo M35_33.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, M35_33, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo M35_33.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, M35_34, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo M35_34.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, M35_34, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo M35_34.tab	Gauss-Krüger
Moldova	Geologic map, 1:200.000, M35_35, redaction 1988,	AGRM, IGS	rast	Georeferencing, digitization	Geo M35_35.jpg	Gauss-Krüger
Moldova	Geologic map, 1:200.000, M35_35, redaction 1988,	AGRM, IGS	tab	Georeferencing, digitization	Geo M35_35.tab	Gauss-Krüger
Ukraine	Map of seismic areas of Crimea, Map Sheet "Sevastopol", 1:125 000	Crimean Seismological Centre	rast	Georeferencing, digitizationjpg	Gauss-Krüger
Ukraine	Map of seismic areas of Crimea, Map Sheet "Yalta", 1:50 000	Crimean Seismological Centre	rast	Georeferencing, digitizationjpg	Gauss-Krüger
Ukraine	Map of seismic areas of Crimea, Map Sheet "Alusta", 1:50 000	Crimean Seismological Centre	rast	Georeferencing, digitizationjpg	Gauss-Krüger
Ukraine	Map of seismic areas of Crimea, Map Sheet "Alupka, Gaspra, Simeiz", 1:50 000	Crimean Seismological Centre	rast	Georeferencing, digitizationjpg	Gauss-Krüger
Romania	EARTHQUAKE PAPERS / ARTICLES		tab		Copy of Articole_cutremure_A rpent.xls	
Turkey	BU-KOERI-NEMC_Eartquake Catalog, Turkey	KOERI - NATIONAL EARTHQUAKE MONITORING CENTER	tab	digitization	shp / tab / *.jpg	
Turkey	Active Fault Map, 1:1,250,000 (Tekirdag, Marmara Region)	MTA (General Directorate of Mineral Research and Exploration)	rast	Georeferencing, digitization	*.pdf	
Turkey	Active Fault Map, 1:1,250,000 (Tekirdag, Marmara Region)	KOERI	vec	Georeferencing, digitization	*.tab / *.shp	
Turkey	Active Fault Map, 1:1,250,000 (Samsun)	MTA (General Directorate of Mineral Research and Exploration)	rast	Georeferencing, digitization	*.pdf	
Turkey	Active Fault Map, 1:1,250,000 (Samsun)	KOERI	vec	Georeferencing, digitization	*.tab / *.shp	

Seismicity							
Turkey	Active Fault Map, 1:1,250,000 (Istanbul, Marmara Region)	MTA (General Directorate of Mineral Research and Exploration)	rast		Georeferencing, digitization	*.pdf	
Turkey	Active Fault Map, 1:1,250,000 (Istanbul, Marmara Region)	KOERI	vec		Georeferencing, digitization	*.tab / *.shp	
Greece	SEISMOLOGICAL DATA (Including Origin Date, Origin Time, Seismic Magnitude M, Distance, Depth and possibly Location of seismic event)	National Observatory of Athens Institute of Geodynamics (http://www.gein.noa.gr/en/)	tab		Recorded by the NOA-IG Seismological Network	Earthquake_Catalogs	WGS84
Greece	SEISMOLOGICAL DATA (Including Origin Date, Origin Time, Seismic Magnitude M, Distance, Depth and possibly Location of seismic event)	Aristotle Univ. of Thessaloniki-Seismological Station (http://geophysics.geo.auth.gr/th_e_seisnet/WEBSITE_2005/station_index_en.html)	tab		Recorded by the AUTH-Seismological Network	CATALOGS/seiscat.dat	WGS84
Greece	STRONG MOTION DATA (Including uncorrected, corrected and spectral values of the main strong events in Greece)	EPPO-ITSAK : Institute of Engineering Seismology &Earthquake Engineering (www.itsak.gr)		ITSAK	Signal Data Processing of Time Histories carried out by ITSAK	xxx.v1 Uncorrected data xxx.v2 Corrected Data xxx.v3 Response Spectra	
Greece	GeoCharacterization Data Set for Accelerographic Stations	EPPO-ITSAK : Institute of Engineering Seismology &Earthquake Engineering (monographs.itsak.gr)		ITSAK		Monographs Website Address.	
Greece	Seismicity Map of the Examined Area of Black Sea Project	EPPO-ITSAK : Institute of Engineering Seismology &Earthquake Engineering (www.itsak.gr)	Tab	ITSAK		????	
Greece	Seismic Hazard Map in Greece	EPPO - Earthquake Planning and Protection Organization (http://www.oasp.gr/userfiles/EAK2000.pdf)	Tab	EPPO		seismicity_map_BS_ITSAK.jpg	
Moldova	Seismic zonation of Moldova, 1:400000	Ministry of Regional Development and Construction (MRDC) and IGS	rast		Georeferencing	Seismic zonation Moldova 50.jpg	
Ukraine	Water level (mean daily) Ukrainian part of the Danube. Gauging station - Reni - Izmail - Kiliya - Vylkovo (1961-2013)	Danube Hydrometeorological Observatory	tab			H.1961-2013.md.xls	
Ukraine	Ice phenomena Ukrainian part of the Danube. Gauging station - Reni - Izmail - Kiliya - Vylkovo (1961-2013)	Danube Hydrometeorological Observatory	tab			H.ice.1961-2013.xls	
Ukraine	Water discharge (mean daily) Ukrainian part of the Danube. Gauging station - Reni - Izmail - Kiliya - Vylkovo (1961-2013)	Danube Hydrometeorological Observatory	tab			Q.1961-2013.md.xls	

Hydrologic Data	Ukraine	Water temperature (mean daily) Ukrainian part of the Danube. Gauging station - Reni - Izmail - Kiliya - Vylkovo (1961-2013)	Danube Hydrometeorological Observatory	tab	t.1961-2013.md.xls	
	Ukraine	Sediments discharge (mean daily) Ukrainian part of the Danube. Gauging station - Reni - Vylkovo (1961-2013)	Danube Hydrometeorological Observatory	tab	R.1961-2013.md.xls	
	Ukraine	Water level (mean monthly) Ukrainian part of the Danube. Gauging station - Reni - (1921-2013)	Danube Hydrometeorological Observatory	tab	H.1921-2013.md.xls	
	Ukraine	Water level (max monthly) Ukrainian part of the Danube. Gauging station - Reni - (1921-2013)	Danube Hydrometeorological Observatory	tab	H.1921-2013.mx.xls	
	Ukraine	Water level (min monthly) Ukrainian part of the Danube. Gauging station - Reni - (1921-2013)	Danube Hydrometeorological Observatory	tab	H.1921-2013.mn.xls	
	Ukraine	Water discharge (mean monthly) Ukrainian part of the Danube. Gauging station - Reni - (1921-2013)	Danube Hydrometeorological Observatory	tab	Q.1921-2013.md.xls	
	Ukraine	Water discharge (max monthly) Ukrainian part of the Danube. Gauging station - Reni - (1921-2013)	Danube Hydrometeorological Observatory	tab	Q.1921-2013.mx.xls	
	Ukraine	Water discharge (min monthly) Ukrainian part of the Danube. Gauging station - Reni - (1921-2013)	Danube Hydrometeorological Observatory	tab	Q.1921-2013.mn.xls	
	Hydrologic Data	Turkey	Daily flow data at station 101	EIE/YEGM	tab	QXX101.zip
Turkey		Daily flow data at station 103	EIE/YEGM	tab	QXX103.zip	WGS84 with $\phi=41,6642$ $\lambda=26,5528$
Turkey		Daily flow data at station 104	EIE/YEGM	tab	QXX104.zip	WGS84 with $\phi=41,8478$ $\lambda=26,5794$
Turkey		Daily flow data at station 105	EIE/YEGM	tab	QXX105.zip	WGS84 with $\phi=41,2639$ $\lambda=26,6708$
Turkey		Daily flow data at station 106	EIE/YEGM	tab	QXX106.zip	WGS84 with $\phi=41,2100$ $\lambda=27,1181$
Turkey		Daily flow data at station 112	EIE/YEGM	tab	QXX112.zip	WGS84 with $\phi=41,1297$ $\lambda=26,4800$
Turkey		Daily flow data at station 113	EIE/YEGM	tab	QXX113.zip	WGS84 with $\phi=41,8431$ $\lambda=26,5844$
Turkey		Daily flow data at station 209	EIE/YEGM	tab	QXX209.zip	WGS84 with $\phi=40,1916$ $\lambda=27,0342$
Turkey		Daily flow data at station 212	EIE/YEGM	tab	QXX212.zip	WGS84 with $\phi=40,3092$ $\lambda=27,2731$
Turkey		Daily flow data at station 2245	EIE/YEGM	tab	QXX2245.zip	WGS84 with $\phi=41,0831$ $\lambda=26,8264$
Romania		stream network and watershed layers		vec		
Greece		Stream Network	Hydroskopio	vec	Stream_serres.shp	GGRS87
Greece		Rivers	Hydroskopio	vec	Rivers_serres.shp	GGRS87
Greece	Lakes	Hydroskopio	vec	Lake_serres.shp	GGRS87	
Greece	Irrigation Channels	Hydroskopio	vec	irrigation_serres.shp	GGRS87	
Moldova	Hydrology station network	State Hydrometeo Service Moldova	rast		Hydrological Station Network Moldova.jpg	

meteo data	Ukraine	Total precipitation (for month) weatherstation - Izmail - Vylkovo (1945-2013)	Danube Hydrometeorological Observatory	tab	X.1945-2013.mn.xls	
	Ukraine	Daily maximum precipitation (for month) weatherstation - Izmail - Vylkovo (1945-2013)	Danube Hydrometeorological Observatory	tab	X.1945-2013.mx.xls	
	Ukraine	Temperature (for month) weatherstation - Izmail - Vylkovo (1945-2013)	Danube Hydrometeorological Observatory	tab	t.1945-2013.mn.xls	
	Ukraine	Maximum temperature (for month) weatherstation - Izmail - Vylkovo (1945-2013)	Danube Hydrometeorological Observatory	tab	t.1945-2013.mx.xls	
	Ukraine	Minimum temperature (for month) weatherstation - Izmail - Vylkovo (1945-2013)	Danube Hydrometeorological Observatory	tab	t.1945-2013.mn.xls	
	Turkey	Daily precipitation data at st. 1730 (Samsun)	DMI/MGM	tab	P1730.dat	WGS84 with $\phi=40,9583$ $\lambda=27,4965$
	Turkey	Daily precipitation data at st. 1756 (Tekirdag)	DMI/MGM	tab	P1756.dat	WGS84 with $\phi=41,3435$ $\lambda=26,2554$
Greece	Rainfall data	National Meteorologic Agency, Institute of Geological & Mineral Exploration (IGME), Local Authorities	tab	rain_serres.xls		
Moldova	Meteo station network	State Hydrometeo Service Moldova	rast	Meteorological Network Moldova	Gauss-Krüger	
Data on risk of flooding	Ukraine	Dangerous-mark of water. Ukrainian part of the Danube. Gauging station - Reni - Izmail - Kiliya - Vylkovo (levels mark and objects that are flooded)	Danube Hydrometeorological Observatory	tab	tab.danger.2013.doc	
	Ukraine	Duration of standing dangerous-levels mark. Ukrainian part of the Danube. Gauging station - Reni - Izmail - Kiliya - Vylkovo (quantity of days) 1961-2013.	Danube Hydrometeorological Observatory	tab	tab.danger.day.doc	
	Bulgaria	Regions with significant potential risk of flooding		rast	flooding risk Burgas modified.jpg	WGS84 ZONE 35N
	Bulgaria	Regions with significant potential risk of flooding in Black Sea Region Bulgaria		rast	Map, Black sea area, Risk of flooding modified.jpg	WGS84 ZONE 35N
	Romania	Report of historical significant floods		tab	Inventory of floods data - Lungu.xls	
	Greece	Past flood sites	General Secretariat for Civil Protection, Institute of Geological & Mineral Exploration (IGME), Local Authorities	tab	Flood_GR.txt	
	Greece	Past flood sites	SciNetNatHaz	vec	Flood_GR.shp	WGS84
Romania	Land Use maps	Corine Lasnd Cover 2000 (http://www.eea.europa.eu/publications/COR0-landcover)	vec	Corine_2k_SE_RO.shp	reprojected in Stereo'70	

	Country	Category	Source	Format	File Name	Projection
LANDUSE	Romania	Urban areas	Corine Land Cover 2000 (http://www.eea.europa.eu/publications/COR0-landcover)		Urban_SE_RO.shp	reprojected in Stereo'70
	Greece	Land Use maps	Corine Land Cover 2000 (http://www.eea.europa.eu/publications/COR0-landcover)		Corine_2k_serres.shp	GGRS87
	Greece	"Natura" protection areas	Public Open Data (http://geodata.gov.gr/geodata/index.php)		Natura_serres.shp	GGRS87
Infrastructure	Romania	Road Network		vec		
	Romania	Settlements		vec		
	Greece	Road Network	SciNetNatHaz	vec	Digitized from MGS topographic maps 1:50000 road_serres.shp	GGRS87
	Greece	Railroad Network	SciNetNatHaz	vec	Digitized from MGS topographic maps 1:50000 rail_serres.shp	GGRS87
	Greece	Urban areas	Corine Land Cover 2000 (http://www.eea.europa.eu/publications/COR0-landcover)		Urban_serres.shp	GGRS87