



Common Borders. Common Solutions.

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



**Web-GIS Development
Deliverable No.: D.02.03**

GA 2. Geographic Information System Development

RESPONSIBLE: TEI OF KENTRIKI MAKEDONIA (ENPI Beneficiary)

INVOLVED PARTNERS: LP, P2 & P6

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| | |
|--|--|
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1 BACKGROUND OF THE DOCUMENT

1.1 SUMMARY

This document contains the major technical issues concerning the development of the SciNetNatHaz project's Web GIS application. The Web GIS application was designed and initially developed during the Group of Activities 2 (Geographic Information System Development) Activity 2.4 (Development of the Web GIS). The Web GIS application was optimized and enhanced during the project's life in order to satisfy the project's requirements and to comprise all the necessary geospatial data which were produced within the related project's activities (Activities 2.3.& 2.5) and the Group of activities (GA3).

1.2 SCOPE AND OBJECTIVES

The scope was the development of a Web GIS application in order to disseminate the geospatial data regarding flood, landslide and seismic hazard assessment in order to be freely available and be exploited by the decision makers and the public authorities as well. For this reason the application were designed and implemented taking into consideration the following:

- The ease of use: To be as simple as possible in order to be used also by non – experts in the domain of geoinformatics.
- More informative as possible: To presents all the descriptive information about the data and the methodologies that were used in order to produced.
- Freely accessed: Accessed with the use of a web browser application and no need for other specific software installation.

1.3 RELATED DOCUMENTS

1.3.1 Input

List of former deliverables acting as inputs to this document

| Document ID | Descriptor |
|--------------------|--|
| D.2.02 | Geodatabase development |
| D.3.01- Vol. 1-3 | Results from seismic, landslide and flood hazard assessment coming from regional & local implementation of adopted methodologies |

1.3.2 Output

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

| Document ID | Descriptor |
|--------------------|-------------------|
| | |
| | |

2 INTRODUCTION

The WebGIS development is exclusively based on open source software components, not only as regards the final end-user web interface but also as regards the initial data preparation as well as the creation of the appropriate geospatial web services.

The spatial data published through the WebGIS platform are directly retrieved from the geodatabase implemented (D2.02). As additional data were collected during activity 2.5, mainly concerning floods hazard assessment, the geodatabase was enhanced and completed to meet project requirements.

Figure 1 displays the development process workflow, its discrete stages and the technical details during the transition between them. The following stages are identified:

- (1) Data Preparation
- (2) Desktop GIS - Spatial Data Presentation
- (3) Map Server - Web Map Services creation
- (4) WebGIS - End user interface development

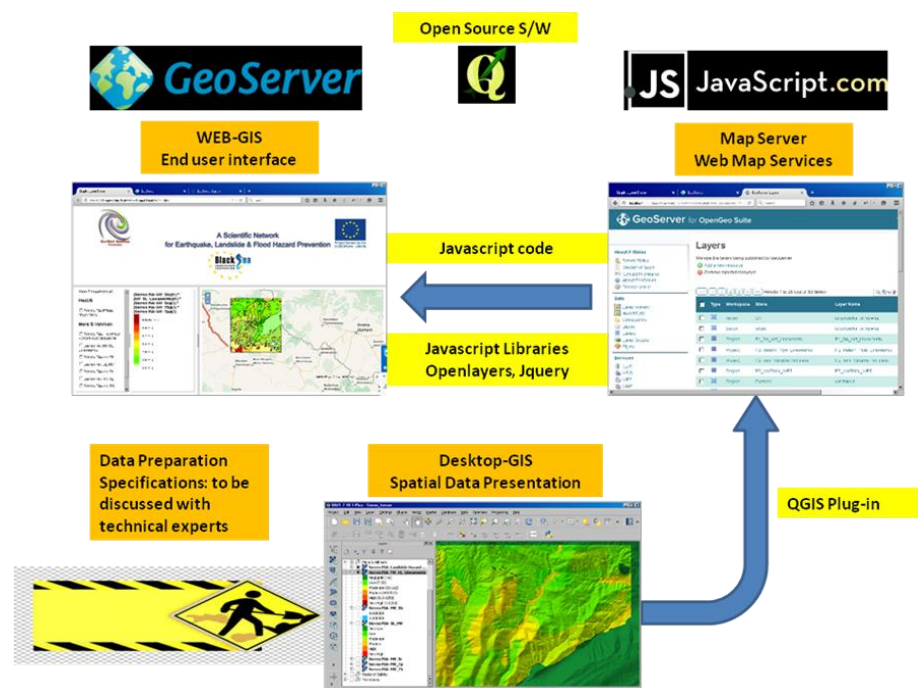


Figure 1: WebGIS development Workflow

The following paragraphs describe in detail each stage and the intermediate processes.

3 GEODATABASE

The geodatabase developed under GA2 (D2.02), was based on InGEOcloudS (Inspired GEOdata CLOUD Services) EC project, as regards, Earthquakes and Landslides hazard assessment related data. To also include Floods hazard, the proposed by InGEOcloudS data models were completed with additional ones. Therefore the Scinetnathaz geodatabase was updated with new data and in-situ measurements to cover Floods (Figure 2)

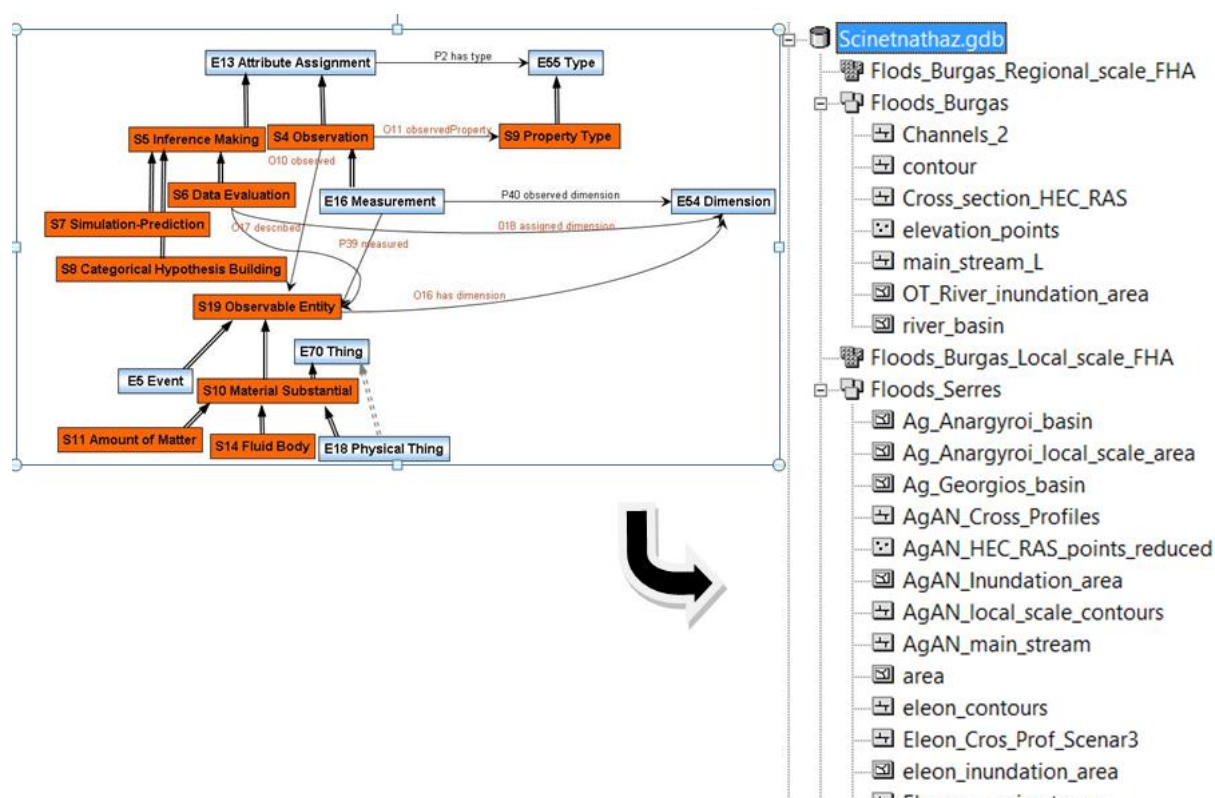


Figure 2: Geodatabase update/completion

4 DATA PREPARATION

Data preparation refers to the following data categories:

- General data (morphometric, geological, engineering etc.)
- Results after the application of selected methodologies

Depending on the hazard (flood, landslide or earthquake), the study area and the above mentioned categories, the following tree structure was adopted:

- Hierarchy Level 1: Hazard (Floods or Landslides or Earthquakes)
- Hierarchy Level 2: Pilot Implementation Area (e.g. Serres, Nymfaia etc.)
- Hierarchy Level 3: Data category (General Data or Results)

5 DESKTOP GIS - SPATIAL DATA PRESENTATION

At this stage data prepared on stage 1 are imported in the selected desktop GIS environment. For every pilot implementation area a QGIS (<http://www.qgis.org/en/site/>) project is deployed containing the appropriate groups of data, spatial reference, symbology, description and metadata information.

Below, the steps of the QGIS project deployment are briefly described.

5.1 STEP 1: ORGANIZING DATA IN THE SPECIFIED TREE STRUCTURE

In order to organize data the appropriate groups of data belonging to the same category have to be created. Grouping data is an area and hazard specific procedure. For example the groups created for presenting a hazard assessment contain morfometric and engineering geology data in the general data category, as shown in figure 3. In the same figure, the methodologies adopted are represented by different groups such as "Mora Vahrson" and "Hazus".

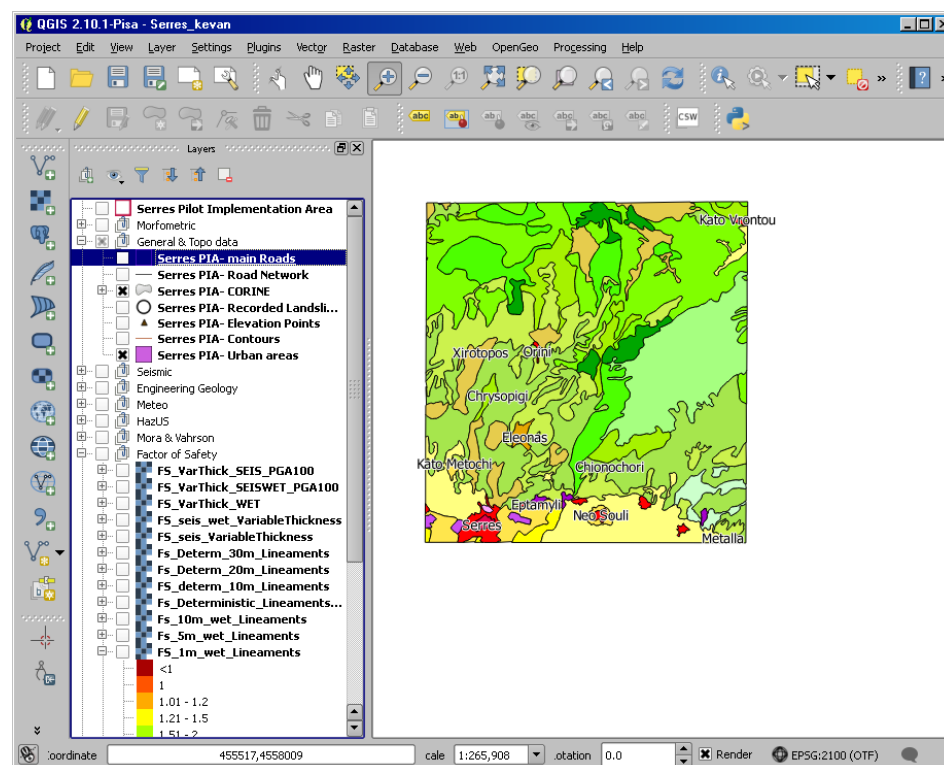


Figure 3: Organizing data for presenting a Hazard assessment

5.2 STEP 2: SYMBOLIZING DATA

Data symbology is crucial for interpreting the results of an assessment. By specifying the range of values that correspond to a color, a legend is created for every layer and this symbology (Figure 4) will be transferred also at the WebGIS interface.

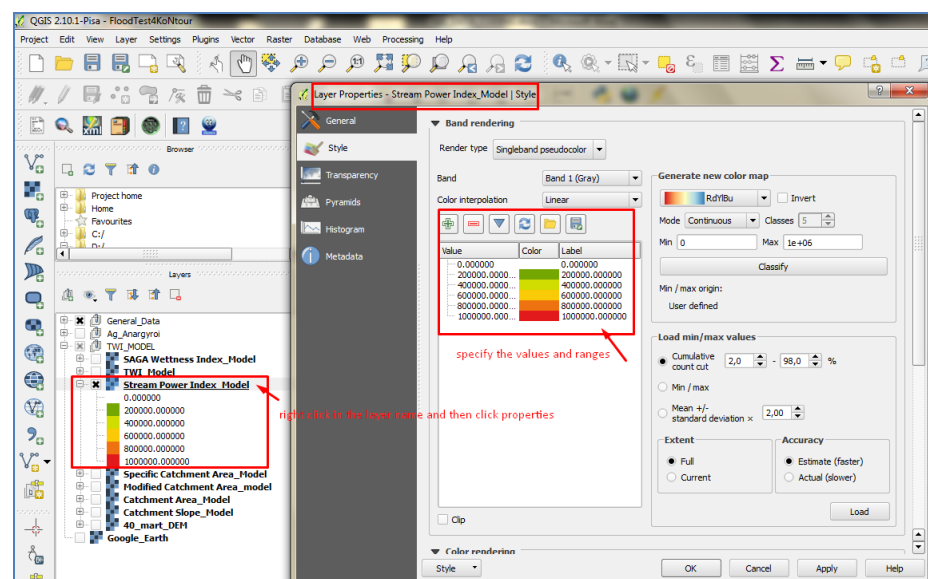


Figure 4: Data Symbology

5.3 STEP 3: DEFINING SPATIAL REFERENCE

All data should belong to the same spatial reference system, which is WGS84 (EPSG: 4326).

5.4 STEP 4: DESCRIBING DATA

A title and a brief description has to be provided in the 'Metadata' screen of every thematic layer properties interface as shown in figure 5

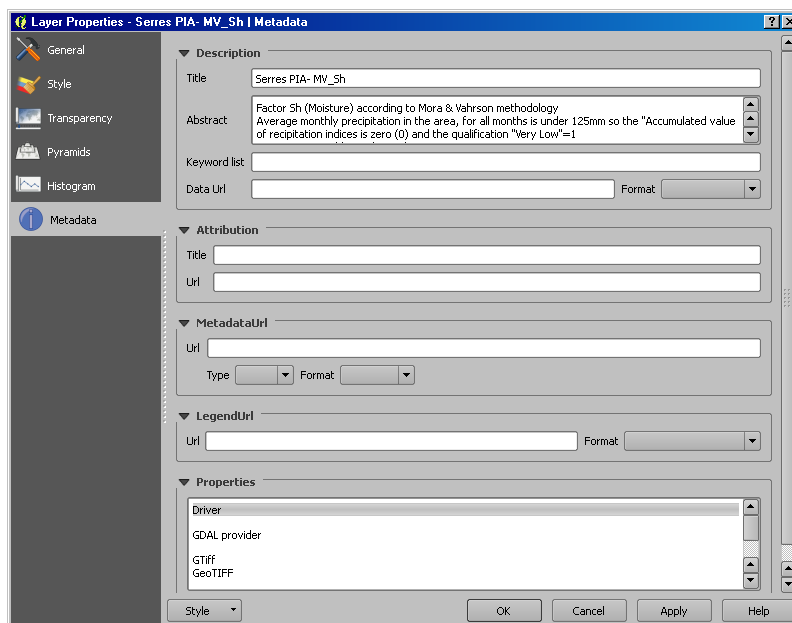


Figure 5: Providing Metadata

6 MAP SERVER - WEB MAP SERVICES CREATION

Desktop GIS data have to be transformed in a way that will allow its web publishing. An open source map server is employed for this purpose, which belongs to the same foundation as the desktop GIS software selected. Geoserver (<http://geoserver.org/>) is a web mapping project of the OSGeo (<http://www.osgeo.org/>) foundation, providing high level capabilities for sharing geospatial data. GeoServer supports OGC (<http://www.opengeospatial.org/ogc>) compliant standards such as Web Feature Service (WFS), Web Map Service (WMS), and Web Coverage Service (WCS).

For every group layer a related workspace was created in order to store its layers. Every layer of the QGIS project was imported via a the appropriate plug-in in the map server and a related Web Map Service was developed and parameterized as shown in Figure 6.

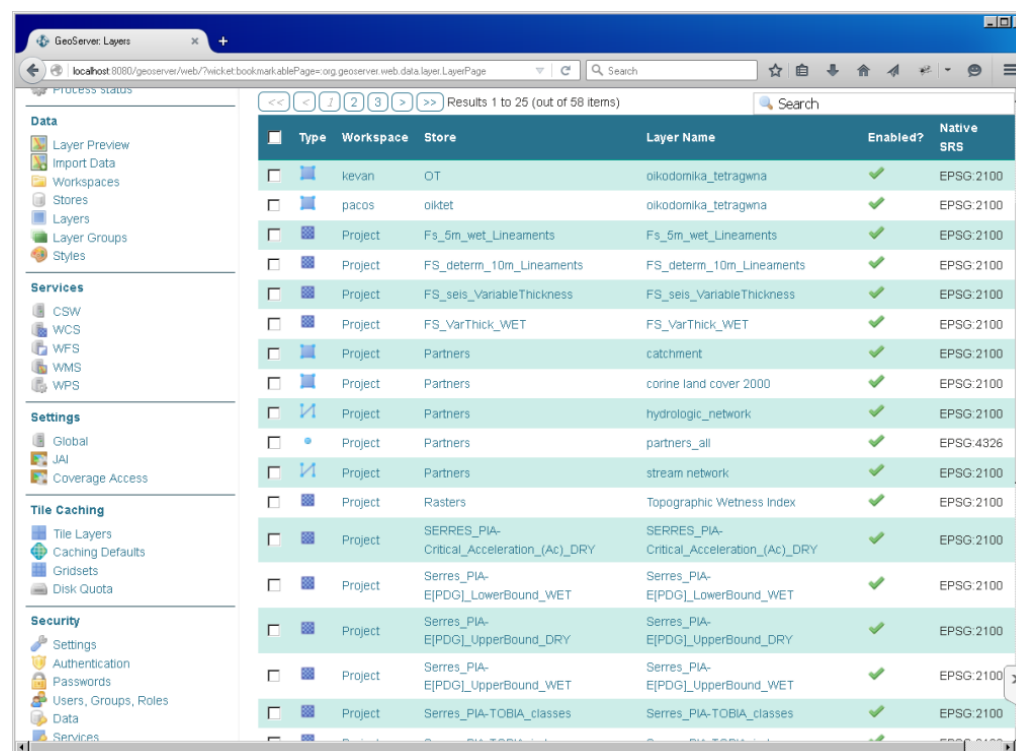


Figure 6: Creating geospatial web services

7 WEBGIS - END USER INTERFACE DEVELOPMENT

The WebGIS end user interface provides high quality navigation experience by providing project thematic layers spatial representations and on the same time metadata and related methodologies and technical specification information.

All of the WebGIS Interface functionality was developed with Javascript (<https://www.javascript.com/>) and HTML. The functional requirements as regards spatial data performance have been satisfied by employing OpenLayers (<http://openlayers.org/>) JavaScript libraries. For the purposes of dividing the interface area in functional subareas, JQuery (<https://jquery.com/>) JavaScript libraries were employed.

The WebGIS Interface was designed according to proven WebGIS projects such as "Eyes on the forest" (<http://maps.eyesontheforest.or.id/>) and contains three functional areas as follows:

- The left area (pane) containing the table of contents of the WebGIS environment: the "About" section area, the base layers section area and a section area for every major category (Floods, Earthquakes and Landslides). Any of the above areas unwraps further content subareas when selected, which in most cases are representing thematic areas with spatial vector and raster datasets. The structure of the various levels of layers follows the one adopted in stage 2 "Desktop GIS - Spatial Data Presentation".
- The middle area which reveals metadata information along with technical details for the selected topic of the left area, as defined in Step 4 "Describing data" of stage 2 "Desktop GIS - Spatial Data Presentation". It is worth mentioning that the middle area provides the corresponding to the left pane content information even on mouse over the desired layer.
- The right pane which contains the map of the selected pilot implementation area and the selected in the left pane spatial data layers.

The end user is allowed to customize the above areas with the desired width or to hide left and/or middle pane. The access to the WebGIS application is performed through the following URL (<http://webgis.scinetnathaz.net:8080/Scinetnathaz/>) or through the 'Home' page of the project's website where there is a specific link to WebGIS.

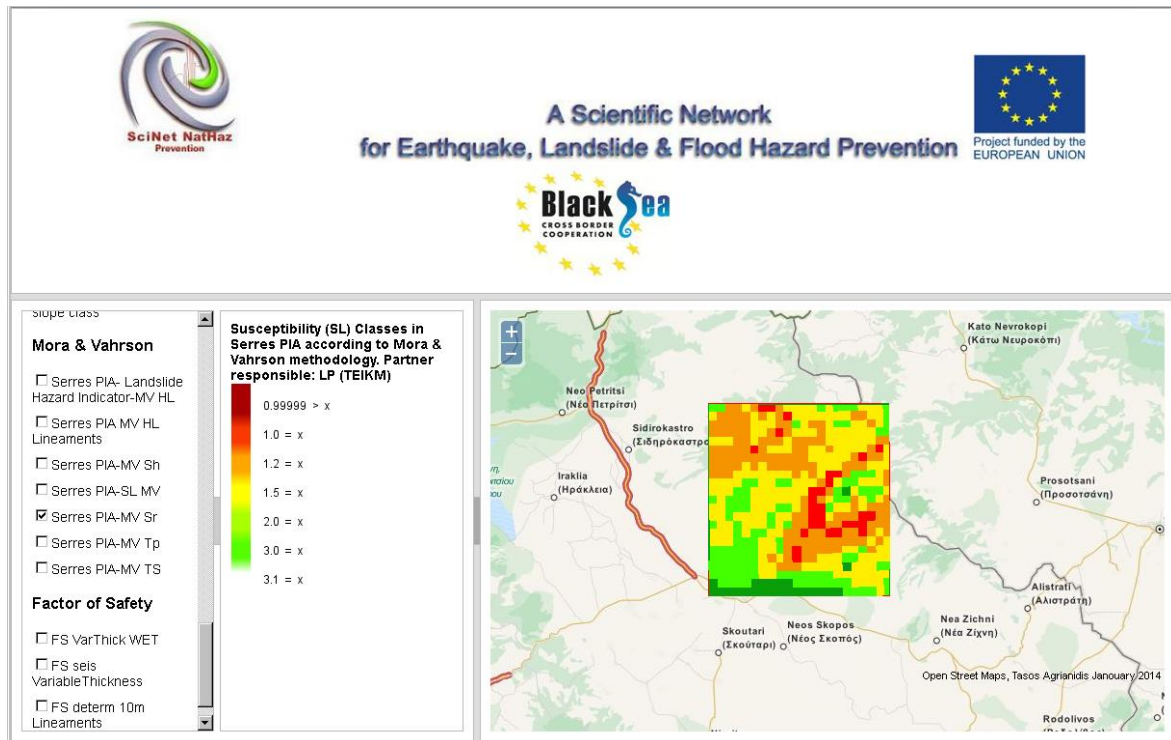


Figure 7: The WebGIS end user interface

8 ANNEX I – WEBGIS JAVASCRIPT CODE

```
<html xmlns="http://www.w3.org/1999/xhtml">

<head>


    <title>Simple Layout Demo</title>


    <script src="http://www.openlayers.org/api/OpenLayers.js"></script>
    <script type="text/javascript" src="jquery.layout.resizePaneAccordions-latest.js"
    ></script>
    <script type="text/javascript" src="jquery.layout-latest.js"></script>
    <script type="text/javascript" src="jquery-ui-latest.js"></script>
    <script type="text/javascript" src="jquery-latest.js"></script>
    <link type="text/css" rel="stylesheet" href="layout-default-latest.css" />
<link rel="stylesheet" type="text/css" media="screen" href="droppable_widget.js.css"
/>
<link rel="stylesheet" type="text/css" media="screen" href="droppable_layout.css" />
    <style type="text/css">
        p {
            font-size:      1em;
            margin:         1ex 0;
        }
        p.buttons {
            text-align:      center;
            line-height:     2.5em;
        }
        button {
            line-height:     normal;
        }
    </style>
</head>
</html>
```



```
.hidden {  
    display:    none;  
}  
  
/*  
 * Rules for simulated drop-down/pop-up lists  
*/  
  
ul {  
    /* rules common to BOTH inner and outer UL */  
  
    z-index:    100000;  
    margin:     1ex 0;  
    padding:     0;  
    list-style: none;  
  
    /* rules for outer UL only */  
  
    position:    relative;  
}  
  
ul li {  
    background-color: #EEE;  
    padding: 0.15em 1em 0.3em 5px;  
}  
  
ul ul {  
    display:     none;  
    position:    absolute;  
    width:       100%;  
    left:        -1px;  
  
    /* Pop-Up */
```

```
        bottom:    0;

        margin:    0;

        margin-bottom: 1.55em;
    }

    .ui-layout-north ul ul {

        /* Drop-Down */

        bottom:    auto;

        margin:    0;

        margin-top: 1.45em;
    }

    ul ul li      { padding: 3px 1em 3px 5px; }
    ul ul li:hover { background-color: #FF9; }
    ul li:hover ul { display: block; background-color: #EEE; }


#page_header

#page_header h3 {

    padding:    5px 15px;

    margin:    0;

    color:#00ff00;
}

#page_header div.toolbar {

    padding:    3px 10px;
}

#page_header .toolbar button {

    padding:    5px 15px;
}

</style>
```

```
<!-- LAYOUT v 1.3.0 -->

<script type="text/javascript" language="Javascript"

    src="https://ajax.googleapis.com/ajax/libs/jquery/1.4.4/jquery.min.js">
</script>

<script type="text/javascript" language="Javascript"

    src="https://ajax.googleapis.com/ajax/libs/jqueryui/1.10.3/jquery-ui.min.js">
</script>

<script type="text/javascript" src="jquery.layout-latest.js"></script>

<script type="text/javascript" src="/lib/js/debug.js"></script>

<script type="text/javascript">

<!-- LAYOUT -->

$(document).ready(function () {

// uncheck checked Checknoxes

document.getElementById ("myCheck").checked = false;
document.getElementById ("myStreamNetwork").checked = false;
document.getElementById ("myCLC200").checked = false;
document.getElementById ("myHydrologicNetwork").checked = false;
document.getElementById ("myCatchment").checked = false;
document.getElementById ("myTWI").checked = false;
document.getElementById ("mySPI").checked = false;
document.getElementById ("myEarthquakes").checked = false;
document.getElementById ("myLandslides").checked = false;
```

```
document.getElementById ("myShapefiles").checked = false;
```

```
//Morfometric
```

```
document.getElementById ("myMorfometricSerresPIAHillshade").checked = false;
```

```
document.getElementById ("myMorfometricSerresPIASlope").checked = false;
```

```
document.getElementById ("myMorfometricSerresPIADEM").checked = false;
```

```
document.getElementById ("myMorfometricSerresPIARelief").checked = false;
```

```
//GeneralTopodata
```

```
document.getElementById ("myGeneralTopodataSerresPIAmainRoads").checked =  
false;
```

```
document.getElementById ("myGeneralTopodataSerresPIARoadNetwork").checked =  
false;
```

```
document.getElementById ("myGeneralTopodataSerresPIACORINE").checked = false;
```

```
document.getElementById  
("myGeneralTopodataSerresPIARecordedLandslides").checked = false;
```

```
document.getElementById ("myGeneralTopodataSerresPIAElevationPoints").checked  
= false;
```

```
document.getElementById ("myGeneralTopodataSerresPIAContours").checked = false;
```

```
document.getElementById ("myGeneralTopodataSerresPIAUrbanareas").checked =  
false;
```

```
// mySeismic
```

```
document.getElementById ("mySeismicSerresPIAPGA").checked = false;
```

```
document.getElementById ("mySeismicSerresPIAPGA475").checked = false;
```

```
//my Engineering Geology
```

```
document.getElementById  
("myEngineeringGeologySerresPIATectonicStructures").checked = false;
```

```
document.getElementById ("myEngineeringGeologySerresPIALineaments").checked =  
false;
```

```
document.getElementById ("myEngineeringGeologySerresPIADipDir").checked = false;
```

```
document.getElementById ("myEngineeringGeologySerresPIAGeology").checked =  
false;
```

```
document.getElementById ("myEngineeringGeologySerresPIATOBIAindex").checked =  
false;
```

```
document.getElementById ("myEngineeringGeologySerresPIATOBIAclasses").checked  
= false;
```

```
//Meteo
```

```
document.getElementById ("myMeteoSerresPIAMeteoStations").checked = false;
```

```
document.getElementById ("myMeteoSerresPIAMeanAnnualRainfall").checked = false;
```

```
//HazUS
```

```
document.getElementById ("myHazUSSerresPIAFEMAslopeclass").checked = false;
```

```
//HazUS
```

```
document.getElementById  
("myMoraVahrsonSerresPIALandslideHazardIndicatorMVHL").checked = false;
```

```
document.getElementById ("myMoraVahrsonSerresPIAMVHLLineaments").checked =  
false;
```

```
document.getElementById ("myMoraVahrsonSerresPIAMVSh").checked = false;
```

```
document.getElementById ("myMoraVahrsonSerresPIASLMV").checked = false;
```

```
document.getElementById ("myMoraVahrsonSerresPIAMVSR").checked = false;
```

```
document.getElementById ("myMoraVahrsonSerresPIAMVTp").checked = false;
```

```
document.getElementById ("myMoraVahrsonSerresPIAMVTS").checked = false;
```

```
// myFactorOfSafety
```

```
document.getElementById ("myFactorOfSafetyFSVarThickWET").checked = false;
```

```
document.getElementById ("myFactorOfSafetyFSseisVariableThickness").checked =  
false;
```

```
document.getElementById ("myFactorOfSafetyFSdeterm10mLineaments").checked =  
false;
```

```
document.getElementById ("myFactorOfSafetyFs5mwetLineaments").checked = false;
```

```
$('#body').layout({ applyDemoStyles: true
```

```
,  north__paneSelector:    "#page_header" // page header  
,  north__closable:        false  
,  north__resizable: false  
,  west__size :             0.40  
,  west__onresize :        $.layout.callbacks.resizePaneAccordions  
,  east__closable:         false  
,  center__closable:       true  
,  west__childOptions : {  
  
        size:             .50  
  
    }  
});
```

```
// ACCORDION - in the West pane
```

```
$("#accordion1").accordion({  
    heightStyle:    "content"  
  
});  
});
```

</script>

<style>

#map-id {

width: 100%;

height: 100%;

}

</style>

<div id="testlayer">

<img src=

"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSIO
N=1.0.

0&FORMAT=image/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-
_CORINE&STYLE=Serres_PIA-_C

ORINE" ></div>

<!-- Text Landslides Morfometric-->

<div id="StylemyMorfometricSerresPIAHillshade">

<img src=

"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSIO
N=1.0.0&FORMAT=ima

ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_Hillshade&STYLE=Serres_PIA-
_Hillshade" ></div>

<div id="StylemyMorfometricSerresPIASlope">

<img src=

"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSIO
N=1.0.0&FORMAT=ima

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_Slope&STYLE=Serres_PIA-_Slope" ></div>
```

```
<div id="StylemyMorfometricSerresPIADEM">
```

```
<img src=
```

```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_DEM&STYLE=Serres_PIA-_DEM" ></div>
```

```
<div id="StylemyMorfometricSerresPIARelief">
```

```
<img src=
```

```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_Relief&STYLE=Serres_PIA-_Relief" ></div>
```

```
<!-- Text Landslides General & Topo data-->
```

```
<div id="StylemyGeneralTopodataSerresPIAmainRoads">
```

```
<img src=
```

```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_mainRoads&STYLE=Serres_PIA-_mainRoads" ></div>
```

```
<div id="StylemyGeneralTopodataSerresPIARoadNetwork">
```

```
<img src=
```

```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_Road_Network&STYLE=Serres_PIA-_RoadNetwork"
```

```
></div>
```

```
<div id="StylemyGeneralTopodataSerresPIACORINE">
```

```
<img src=
```



```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_CORINE&STYLE=Serres_PIA-_CORINE" ></div>
```

```
<div id="StylemyGeneralTopodataSerresPIARecordedLandslides">
```

```
<img src=
```

```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_Recorded_Landslides&STYLE=Serres_PIA-_Recorded_Lan
```

```
dslides" ></div>
```

```
<div id="StylemyGeneralTopodataSerresPIAElevationPoints">
```

```
<img src=
```

```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_Elevation_Points&STYLE=Serres_PIA-_Elevation_Point
```

```
s" ></div>
```

```
<div id="StylemyGeneralTopodataSerresPIAContours">
```

```
<img src=
```

```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_Contours&STYLE=Serres_PIA-_Contours" ></div>
```

```
<div id="StylemyGeneralTopodataSerresPIAUrbanareas">
```

```
<img src=
```

```
"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSION=1.0.0&FORMAT=ima
```

```
ge/png&WIDTH=20&HEIGHT=20&LAYER=Serres_PIA-_Urban_areas&STYLE=Serres_PIA-_Urban_areas" ></div>
```

```
<!-- Text FactorOfSafety-->
```

```
<div id="StylemyFactorOfSafetyFSVarThickWET">
```

```

<img src=

"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSIO
N=1.0.0&FORMAT=ima

ge/png&WIDTH=20&HEIGHT=20&LAYER=FS_VarThick_WET&STYLE=FS_VarThick_WE
T" ></div>

<div id="StylemyFactorOfSafetyFSseisVariableThickness">

<img src=

"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSIO
N=1.0.0&FORMAT=ima

ge/png&WIDTH=20&HEIGHT=20&LAYER=FS_seis_VariableThickness&STYLE=FS_seis
_VariableThickness"

></div>

<div id="StylemyFactorOfSafetyFSdeterm10mLineaments">

<img src=

"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSIO
N=1.0.0&FORMAT=ima

ge/png&WIDTH=20&HEIGHT=20&LAYER=FS_determ_10m_Lineaments&STYLE=FS_de
term_10m_Lineaments"

></div>

<div id="StylemyFactorOfSafetyFs5mwetLineaments">

<img src=

"http://localhost:8080/geoserver/Project/wms?REQUEST=GetLegendGraphic&VERSIO
N=1.0.0&FORMAT=ima

ge/png&WIDTH=20&HEIGHT=20&LAYER=FS_5m_wet_Lineaments&STYLE=FS_5m_wet
_Lineaments"></div>

<div id="textmyFFactorOfSafetyFSVarThickWET"><b>FS VarThick WET</b><br>
( "c_cohesion_CLIP@1" + ( ( "UnitWeight_CLIP@1" - "WI values_5-10@1" * 10 ) *
"d_soil_new1@1" * cos ( "slope_CLIP@1" / 57.32484076433121 ) * cos (
"slope_CLIP@1" /
57.32484076433121 ) * tan ( "F_friction_CLIP@1" / 57.32484076433121 ) ) ) / (

```

"UnitWeight_CLIP@1" * "d_soil_new1@1" * sin (("slope_CLIP@1" /
57.32484076433121) *

cos ("slope_CLIP@1" / 57.32484076433121)))

</div>

<div id="textmyFFactorOfSafetyFSseisVariableThickness">FS seis
VariableThickness

("c_cohesion_CLIP@1" + ("d_soil_new1@1" * "UnitWeight_CLIP@1" * (cos (

57.32484076433121) ^ 2) - "d_soil_new1@1" * ("UnitWeight_CLIP@1" / 9.81) * (

"PGA_SAGA@1" / 100) * cos ("slope_CLIP@1" / 57.32484076433121) * sin (

/ 57.32484076433121)) * tan ("F_friction_CLIP@1" / 57.32484076433121)) / (

"d_soil_new1@1" * "UnitWeight_CLIP@1" * sin ("slope_CLIP@1" / 57.32484076433121
) * cos (

"slope_CLIP@1" / 57.32484076433121) + "d_soil_new1@1" * ("UnitWeight_CLIP@1" /
9.81) *

("PGA_SAGA@1" / 100) * cos ("slope_CLIP@1" / 57.32484076433121) ^ 2)

</div>

<div id="textmyFFactorOfSafetyFSdeterm10mLineaments">FS determ 10m
Lineaments

4.32 * ("C_withLineaments@1" / ("UnitWeight_CLIP@1" * 10 * sin ("Serres PIA-
Slope@1" /

57.32484076433121))) + 1.22 * (1 - "WI values_5-10@1") * (tan ("F_friction_CLIP@1"

57.32484076433121) / tan ("Serres PIA- Slope@1" / 57.32484076433121)) +
0.005

</div>

<div id="textmyFFactorOfSafetyFs5mwetLineaments">Fs 5m wet
Lineaments

("C_withLineaments@1" + (("UnitWeight_CLIP@1" - "WI values_5-10@1" * 10) * 5 *
cos (

```
"Serres PIA- Slope@1" / 57.32484076433121 ) * cos ( "Serres PIA- Slope@1" /  
57.32484076433121 ) * tan ( "F_friction_CLIP@1" / 57.32484076433121 ) ) / (  
"UnitWeight_CLIP@1" * 5 * sin ( ( "Serres PIA- Slope@1" / 57.32484076433121 ) * cos  
(  
"Serres PIA- Slope@1" / 57.32484076433121 ) ) )<br><br>  
</div>
```

```
<script>
```

```
var arrayAerial;
```

```
var baseAerial;
```

```
arrayAerial = ["http://otile1.mqcdn.com/tiles/1.0.0/sat/{z}/{x}/{y}.jpg",  
               "http://otile2.mqcdn.com/tiles/1.0.0/sat/{z}/{x}/{y}.jpg",  
               "http://otile3.mqcdn.com/tiles/1.0.0/sat/{z}/{x}/{y}.jpg",  
               "http://otile4.mqcdn.com/tiles/1.0.0/sat/{z}/{x}/{y}.jpg"];
```

```
baseAerial = new OpenLayers.Layer.OSM ("MapQuest Open Aerial Tiles", arrayAerial);
```

```
document.getElementById ("SimpleText").style.color="blue";
```

```
var tiled;
```

```
function myFunction ()
```

```
{
```

```
if (document.getElementById ("myCheck").checked == true)
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="Partners Text";
```

```
//WMS partners
```

```
format = 'image/png';

tiled = new OpenLayers.Layer.WMS (
    "Project:partners_all - Tiled",
    "http://localhost:8080/geoserver/Project/wms",
    {
        LAYERS: 'Project:partners_all',
        STYLES: "",
        format: format,
        transparent: "true",
        tiled: true,
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
    },
    {
        buffer : 0,
        displayOutsideMaxExtent: true,
        isBaseLayer: false,
        yx : {'EPSG:4326' : true},
    }
);

map.addLayer (tiled);

map.setCenter (
    new OpenLayers.LonLat (34.000,45.000).transform(
        new OpenLayers.Projection ("EPSG:4326"),map.getProjectionObject ()), 5
);

}
```

```
else
{
    map.removeLayer (tiled);
}

}

function myZoom (){
    map.setCenter (
        new OpenLayers.LonLat (24.000,41.000).transform(
            new OpenLayers.Projection ("EPSG:4326"),map.getProjectionObject ()), 10
    );
}

var tiledStreamNetwork;
function myStreamNetwork ()
{

if (document.getElementById ("myStreamNetwork").checked == true)
{

//WMS partners
format = 'image/png';
tiledStreamNetwork = new OpenLayers.Layer.WMS (

        "Project:stream network - TiledStreamNetwork",
```

```
"http://localhost:8080/geoserver/Project/wms",  
  
{  
  
    LAYERS: 'Project:stream network',  
  
    STYLES: "",  
  
    format: format,  
  
    transparent: "true",  
  
    tiled: true,  
  
    tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
  
},  
  
{  
  
    buffer : 0,  
  
    displayOutsideMaxExtent: true,  
  
    isBaseLayer: false,  
  
    yx : {'EPSG:2100' : true}  
  
}  
  
);  
  
map.addLayer (tiledStreamNetwork);  
  
myZoom ();  
  
}  
  
else  
  
{  
  
    map.removeLayer (tiledStreamNetwork);  
  
}  
  
}  
  
var tiledCLC200;
```

```
function myCLC200 ()  
{  
  
if (document.getElementById ("myCLC200").checked == true)  
{  
  
//WMS partners  
format = 'image/png';  
tiledCLC200 = new OpenLayers.Layer.WMS (  
    "Project: Corine Land cover 2000 - TiledStreamNetwork",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:corine land cover 2000',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
);
```



```
        map.addLayer (tiledCLC200);

        myZoom ();

    }

else

{

    map.removeLayer (tiledCLC200);

}

}

// ACCORDION Functions: change Text

function myF ()

{

    document.getElementById ("myDIV").innerHTML="Earthquake Text";

}

function myF2 ()

{

    document.getElementById ("myDIV").innerHTML="Floods Text";

}

function myF3 ()

{

    document.getElementById ("myDIV").innerHTML="Landslides Text";

}
```

```
function myFBaseLayers ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="BaseLayers Text";  
  
}  
  
function myFAbout ()  
  
{  
  
document.getElementById ("myDIV").innerHTML=" <b> Overall objective</b> <br>The  
global  
  
objective is to achieve a strong regional partnership and coperation by the  
Development of  
  
a Scientific Network for the establishment a scientific consensus, in order to setup  
common  
  
strategies and natural hazard prevention methods.The Scientific Network members will  
work  
  
together sharing competencies and recources to address earthquake, landslide and  
flood  
  
hazards which does have Trans - boundary consequences both on the economy and  
on the  
  
environment.<br><br><b>Specific objectives</b><ul><li>Setup common  
terminology,methodologies  
  
and strategies for Earthquake, Landslide and Flood Hazards ELFH  
  
prevention.</li><li>Development of a Web Gis Platform that will support decision  
making and  
  
will also provide data and information to the scintific community interested in  
Earthquake,  
  
Landslide and Flood Hazards (ELFH), that promoting research and innovation  
reagarding  
  
natural hazard's prevention and preparedness in the Black Sea area.</li><li>Implement  
finally selected(developed or adapted ) methodologies to access hazards on a regional  
scale  
  
and on local scale in selected locations.</li><li>Provide training with open seminars  
and  
  
workshops.</li></ul><b>Locations of the joint Action </b><ul><li>Greece : Kentriki
```

Macedonia-Serres , Anatoliki Makedonia Thraki-Komotini, Evros/Marica river catchment within

the eligible area, all townsBulgaria : Yogostochen, Evros/Marica river within the eligible area, all towns)Turkey : Tekirdaq, Evros river catchment within the eligible area, all towns, Istanbul, the wider areaof Samsun.Romania : NUTS II region of the South-East, Danube rever delta wider area, all citiesMoldova : Moldova, Danube river

delta wider areaUkraine : Odessa, Danube river dalta wider area, all cities";
}

```
function myFPartners ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="Partners Text";
```

```
}
```

```
// Checkboxes Functions: change Text for now
```

```
function myFunctionEarthquakes ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="CheckboxEarthquakes Text";
```

```
}
```

```
function myFStreamNetwork ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Stream network: </b>The layer  
was derived
```

```
from digitization of topographic maps at scale 1:50000 in order to be used as auxiliary  
file
```

```
to DEM (Digital Elevation model) creation.";
```

}

function myFCLC200 ()

{

document.getElementById ("myDIV").innerHTML="Corine Land cover 2000: It provides

consistent information on land cover changes during the past decade across Europe and is the

update of the first CLC database which was finalised in the early 1990s as part of the

European Commission programme to COoRdinate INformation on the Environment (Corine). More

information about CORINE project, please visit the following link:

<http://www.eea.europa.eu/data-and-maps/data/corine-land-cover-2000-clc2000-seamless-vector-dat>

abase-5#tab-additional-information ";

}

function myFHydrologicNetwork ()

{

document.getElementById ("myDIV").innerHTML="Stream network: This layer represents the

hydrographic network of the selected catchment area and created with the use of DEM and flow

direction layer, through QGIS – SAGA toolbox (terrain analysis).";

}

function myFCatchment ()

{

document.getElementById ("myDIV").innerHTML="Catchment: This vector layer delineates

the watersheds of the area of interest and was derived using automated routines within GIS

software (QGIS – SAGA toolbox). A DEM and stream network layers were required as input

layers for this procedure.";

}

function myFTWI ()

{

document.getElementById ("myDIV").innerHTML="TWI: The Topographic Wetness Index was

proposed to predict quick response flow by using morphometric parameters but has been used

since then to delineate flood prone areas.
Townsend et al. (1998) were used the

Topographic Wetness Index (TWI) that introduced by Beven and Kirkby (1979) in order to

measure the depth of inundation.
 $TWI = \ln(A_s/b)$, where A_s : upslope area and b :

slope
According to that, the water accumulation to a specific point (cell) of the

catchment's area is depends on the upslope area and the ground slope of this point (cell).

The use of TWI is not applicable to areas where the ground slope is very low (tends to

flat).
TWI can be computed through GIS software (QGIS, SAGA, ArcGIS) using as input data

a Digital Elevation Data (DEM). Thus the quality of the output is depending on DEM's

precision. The higher values of TWI, the greater the potential for those areas to be

saturated with water. Therefore, areas with high TWI values are more susceptible to flash

flooding as compared to those with low values.";

}

function myFSPI ()

```
{  
  
document.getElementById ("myDIV").innerHTML="<b>SPI:</b> The Stream Power  
Index model was  
  
developed to assess the potential flow erosion at the given point of the ground  
surface. The  
  
model combines slope gradient and catchment area. As Stream Power (SP) is a  
measure of the  
  
rate of stream water energy dissipation against the stream bed and banks, it can  
provide an  
  
estimation on the impetuosity of water during a potential flood event<br>SPI is  
calculated  
  
as:  $SPI = \rho * g * q$ , where  $\rho * g$  is the unit weight of water and q is the discharge per unit  
width. The index provides a measure of the time rate of energy expenditure and is  
being used  
  
since 1988 in assessing erosion, sediment transport as a measure of the flowing water  
erosive power. Parameter “q” is often assumed to be proportional to slope ( $\beta$ ) and  
Specific  
  
Catchment Area ( $A_s$ ) which is the Upslope area per unit width of contour and is related  
to  
  
the runoff volume, so  $q=A_s*\tan\beta$  .";  
  
}
```

```
function myFShapefiles ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="<b>SPI:</b> Shapefiles the potential  
flow  
  
erosion at the given point of the ground surface. The model combines slope gradient  
and  
  
catchment area. As Stream Power (SP) is a measure of the rate of stream water energy  
dissipation against the stream bed and banks, it can provide an estimation on the  
  
impetuosity of water during a potential flood event<br>SPI is calculated as:  $SPI =$   
 $\rho * g * q$ ,  
  
where  $\rho * g$  is the unit weight of water and q is the discharge per unit width. The index
```

provides a measure of the time rate of energy expenditure and is being used since 1988 in

assessing erosion, sediment transport as a measure of the flowing water erosive power.

Parameter "q" is often assumed to be proportional to slope (β) and Specific Catchment Area

(A_s) which is the Upslope area per unit width of contour and is related to the runoff volume, so $q=A_s \cdot \tan \beta$.";

}

//Text Landslides Morfometric

```
function myFMorfometricSerresPIAHillshade ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Serres Pilot Implementation  
Area-
```

```
Hillshade.</b> Pixelsize: 15x15m.<br>Partner responsible: LP";
```

```
//var x =
```

```
document.getElementById("StylemyMorfometricSerresPIAHillshade").innerHTML;
```

```
//document.getElementById("myDIV2").innerHTML = x;
```

```
}
```

```
function myFMorfometricSerresPIASlope ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Serres Pilot Implementation  
Area- Slope.</b>
```

```
Pixelsize: 15x15m.<br>Partner responsible: LP";
```

```
//var x = document.getElementById("StylemyMorfometricSerresPIASlope").innerHTML;
```

```
//document.getElementById("myDIV2").innerHTML = x;
```

```
}
```

```
function myFMorfometricSerresPIADEM ()
{

document.getElementById ("myDIV").innerHTML="<b>Serres Pilot Implementation
Area- DEM.</b>

Pixelsize: 15x15m.<br>Partner responsible: LP";

//var x = document.getElementById("StylemyMorfometricSerresPIADEM").innerHTML;

//document.getElementById("myDIV2").innerHTML = x;

}

function myFMorfometricSerresPIARelief ()
{

document.getElementById ("myDIV").innerHTML="<b>Serres Pilot Implementation
Area- Relief.</b>

Pixelsize: 15x15m.<br>Partner responsible: LP";

//var x = document.getElementById("StylemyMorfometricSerresPIARelief").innerHTML;

//document.getElementById("myDIV2").innerHTML = x;

}

//Text Landslides General & Topo data

function myFGeneralTopodataSerresPIAmainRoads ()
{

document.getElementById ("myDIV").innerHTML="<b>Serres PIA- main Roads.</b>
Digitized from

topographic maps and corrected using Greek Cadastre aerial photographs. Partner
responsible:

LP";

}
```



```
function myFGeneralTopodataSerresPIARoadNetwork ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="<b>Serres PIA- Road Network.</b>  
Based on OSM  
  
data.<br>Partner responsible: LP";  
  
}  
  
function myFGeneralTopodataSerresPIACORINE ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="<b>Serres PIA- CORINE.</b> Based  
on Corine 2000  
  
(Greece) data. Corine 2000";  
  
}  
  
function myFGeneralTopodataSerresPIARecordedLandslides ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="<b>Landslides recorded by field  
work.</b>  
  
Partner responsible: LP";  
  
}  
  
function myFGeneralTopodataSerresPIAElevationPoints ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="<b>Elevation points digitized,  
produced from  
  
1:50.000 topographic maps (G.Y.S. Greece).</b> Partner responsible: LP";  
  
}  
  
function myFGeneralTopodataSerresPIAContours ()
```

```
{  
  
document.getElementById ("myDIV").innerHTML="<b>Serres PIA- Contours, produced  
from digitized  
  
contours (G.Y.S. Greece) and elevation points.</b> Base data from 1:50.000  
topographic  
  
maps. Partner responsible: LP";  
  
}
```

```
function myFGeneralTopodataSerresPIAUrbanareas ()
```

```
{  
  
document.getElementById ("myDIV").innerHTML="<b>Urban areas based on Corine  
2000 land  
  
cover.</b> Partner responsible: LP";  
  
}
```

```
//Seismic
```

```
function myFSeismicSerresPIAPGA ()
```

```
{  
  
document.getElementById ("myDIV").innerHTML="<b>Peak Ground Acceleration  
values calculated  
  
for various return periods. Data provided by P3 (Institute of Engineering Seismology  
and  
  
Earthquake Design, EPPO, Greece)";  
  
}
```

```
function myFSeismicSerresPIAPGA475 ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Peak Ground Acceleration  
values spatial
```

```
distribution for a 475year return period. Data provided by P3 (Institute of Engineering  
Seismology and Earthquake Design, EPPO, Greece). Pixel size: 15x15m";  
}
```

```
//Engineering Geology
```

```
function myFEngineeringGeologySerresPIATectonicStructures ()
```

```
{  
  
document.getElementById ("myDIV").innerHTML="<b>Faults and fractures digitized  
from 1:50.000
```

```
scale Geologic maps (I.G.M.E.)Partner responsible: LP";  
}
```

```
function myFEngineeringGeologySerresPIALineaments ()
```

```
{  
  
document.getElementById ("myDIV").innerHTML="<b>Lineaments correspnding to  
majorfractures
```

```
incuding joints and faults. They were delineated using applied remote sensing  
techniques and
```

```
Landsat TM and ETM+ image data. Partner responsible: LP (TEIKM)";  
}
```

```
function myFEngineeringGeologySerresPIADipDir ()
```

```
{  
  
document.getElementById ("myDIV").innerHTML="<b>Geometric orientation of  
geologic structures
```

```
(bedding, schistocity etc). Data were digitized from 1:50000 geologic maps (Institute of  
Geological and Mineral Exploration-IGME, Hellas). Partner responsible: LP (TEIKM)";
```

}

```
function myFEngineeringGeologySerresPIAGeology ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Geologic map digitized from  
1:50000 geologic
```

```
maps (Institute of Geological and Mineral Exploration-IGME, Hellas). Partner  
responsible: LP
```

```
(TEIKM)";
```

```
}
```

```
function myFEngineeringGeologySerresPIATOBIAindex ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>TOBIA (Topography Bedding  
Intersection Angle)
```

```
Index according to Meentemeyer & Moody (2000) For computation, a slope and a  
aspect raster
```

```
(both in radians) determining slope face orientations are required. The categorical  
TOBIA
```

```
classifies the alignment of a geological structure to Topography into seven  
classes:<br>0)
```

```
Underdip slope<br>1) Dip slope<br>2) Overdip slope<br>3)  
Steepened<br>escarpment<br>4)
```

```
Normal escarpment<br>5) Subdued escarpment<br>6) Orthoclinal slope<br>The  
continuous TOBIA
```

```
index ranges from -1 to 1 (parallel orientation)<br>Reference: Meentemeyer R. K.,  
Moody A.
```

```
(2000). Automated mapping of conformity between topographic and geological  
surfaces.
```

```
Computers & Geosciences, 26, 815 - 829.";
```

```
}
```

```
function myFEngineeringGeologySerresPIATOBIAClasses ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="<b>TOBIA (Topography Bedding  
Intersection Angle)  
  
Index according to Meentemeyer & Moody (2000) For computation, a slope and a  
aspect raster  
  
(both in radians) determining slope face orientations are required. The categorical  
TOBIA  
  
classifies the alignment of a geological structure to Topography into seven  
classes:<br>0)  
  
Underdip slope<br>1) Dip slope<br>2) Overdip slope<br>3)  
Steepened<br>escarpment<br>4)  
  
Normal escarpment<br>5) Subdued escarpment<br>6) Orthoclinal slope<br>The  
continuous TOBIA  
  
index ranges from -1 to 1 (parallel orientation)<br>Reference: Meentemeyer R. K.,  
Moody A.  
  
(2000). Automated mapping of conformity between topographic and geological  
surfaces.  
  
Computers & Geosciences, 26, 815 - 829."  
  
}  
  
//Meteo  
  
function myFMeteoSerresPIAMeteoStations ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="<b>Metadata missing....";  
  
}  
  
function myFMeteoSerresPIAMeanAnnualRainfall ()  
  
{  
  
document.getElementById ("myDIV").innerHTML="<b>Mean annual rainfall (mm)  
calculated from 25yr
```

time series
 $429.52 + 0.1601 * (1.5_DEM_CLIP@1)$
Calculated from meteorological

stations data (elevation and rainfall). The linear regression data:
 $y=0.1601*x + 429.52$,

$R^2=0.8597$ ";

}

//HazUS

function myFHazUSSerresPIAFEMAslopeclass ()

{

document.getElementById ("myDIV").innerHTML="Reclassification of slope according to FEMA

methodology (HazUS) categories (Geologic Group / Slope)
Partner responsible: LP";

}

//Mora & Vahrson

function myFMoraVahrsonSerresPIALandslideHazardIndicatorMVHL ()

{

document.getElementById ("myDIV").innerHTML="Landslide Hazard Indicator according to Mora

& Vahrson Methodology as applied in Serres PIA. Partner responsible: LP (TEIKM);

}

function myFMoraVahrsonSerresPIAMVHLLineaments ()

{

document.getElementById ("myDIV").innerHTML="(Serres PIA- MV_Sh@1) * (MV_SL_Lineaments@1)

* (Serres PIA- MV_Sr@1) * (Serres PIA- MV_TS@1) * (Serres PIA- MV_Tp@1)";

}

```
function myFMoraVahrsonSerresPIAMVSh ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Factor Sh (Moisture) according  
to Mora &
```

```
Vahrson methodology. Average monthly precipitation in the area, for all months is  
under
```

```
125mm so the Accumulated value of recipitation indices is zero (0) and the  
qualification
```

```
Very Low=1";
```

```
}
```

```
function myFMoraVahrsonSerresPIASLMV ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Susceptibility (SL) Classes in  
Serres PIA
```

```
according to Mora & Vahrson methodology. Partner responsible: LP (TEIKM)";
```

```
}
```

```
function myFMoraVahrsonSerresPIAMVSr ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>The Mora & Vahrson  
methodology Sr factor
```

```
recassified according to the methodology.Partner responsible: LP (TEIKM)";
```

```
}
```

```
function myFMoraVahrsonSerresPIAMVTP ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Mora & Vahrson Rainfall  
triggering factor for
```

```
Serres PIA. Partner responsible: LP (TEIKM)";
```

```
}
```

```
function myFMoraVahrsonSerresPIAMVTS ()
```

```
{
```

```
document.getElementById ("myDIV").innerHTML="<b>Mora & Vahrson Earthquake  
triggering factor
```

```
for Serres PIA. Partner responsible: LP (TEIKM) ";
```

```
}
```

```
//Factor of Safety
```

```
function myFFactorOfSafetyFSVarThickWET ()
```

```
{
```

```
var x = document.getElementById  
("textmyFFactorOfSafetyFSVarThickWET").innerHTML;
```

```
document.getElementById ("myDIV").innerHTML=x;
```

```
}
```

```
function myFFactorOfSafetyFSseisVariableThickness ()
```

```
{
```

```
var x = document.getElementById  
("textmyFFactorOfSafetyFSseisVariableThickness").innerHTML;
```

```
document.getElementById ("myDIV").innerHTML=x;
```

```
}
```

```
function myFFactorOfSafetyFSdeterm10mLineaments ()
```

```
{
```



```
var x = document.getElementById  
("textmyFFactorOfSafetyFSdeterm10mLineaments").innerHTML;
```

```
document.getElementById ("myDIV").innerHTML=x;
```

```
}
```

```
function myFFactorOfSafetyFs5mwetLineaments ()
```

```
{
```

```
var x = document.getElementById  
("textmyFFactorOfSafetyFs5mwetLineaments").innerHTML;
```

```
document.getElementById ("myDIV").innerHTML=x;
```

```
}
```

```
// Tiles Flood
```

```
var tiledHydrologicNetwork;
```

```
function myHydrologicNetwork ()
```

```
{
```

```
if (document.getElementById ("myHydrologicNetwork").checked == true)
```

```
{
```

```
format = 'image/png';
```

```
tiledHydrologicNetwork = new OpenLayers.Layer.WMS (
```

```
    "tasos:hydrologic_network - TiledHydrologicNetwork",
```

```
    "http://localhost:8080/geoserver/tasos/wms",
```

```
{
```

```
    LAYERS: 'tasos:hydrologic_network',
```

```
        STYLES: ",
        format: format,
        transparent: "true",
        tiled: true,
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
    },
    {
        buffer : 0,
        displayOutsideMaxExtent: true,
        isBaseLayer: false,
        yx : {'EPSG:2100' : true}
    }
);

map.addLayer (tiledHydrologicNetwork);

myZoom ();

}

else

{

    map.removeLayer (tiledHydrologicNetwork);

}

}

var tiledCatchment;

function myCatchment ()

{

    if (document.getElementById ("myCatchment").checked == true)
```

```
{

format = 'image/png';

tiledCatchment = new OpenLayers.Layer.WMS (

    "Project:Catchment - TiledHydrologicNetwork",

    "http://localhost:8080/geoserver/Project/wms",

    {

        LAYERS: 'Project:catchment',

        STYLES: "",

        format: format,

        transparent: "true",

        tiled: true,

        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom

    },

    {

        buffer : 0,

        displayOutsideMaxExtent: true,

        isBaseLayer: false,

        yx : {'EPSG:4326' : true}

    }

);

map.addLayer (tiledCatchment);

myZoom ();

}
```

```
else
{
    map.removeLayer (tiledCatchment);
}
}

var tiledTWI;
function myTWI ()
{

if (document.getElementById ("myTWI").checked == true)
{

format = 'image/png';

tiledTWI = new OpenLayers.Layer.WMS (
    "Project:TWI - TiledHydrologicNetwork",
    "http://localhost:8080/geoserver/Project/wms",
    {
        LAYERS: 'Project:Topographic Wetness Index ',
        STYLES: "",
        format: format,
        transparent: "true",
        tiled: true,
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
    },
    {
        buffer : 0,
```

```
        displayOutsideMaxExtent: true,

        isBaseLayer: false,

        yx : {'EPSG:4326' : true}

    }

);

    map.addLayer (tiledTWI);

    myZoom ();

}

else

{

    map.removeLayer (tiledTWI);

}

}

var tiledSPI;

function mySPI ()

{

    if (document.getElementById ("mySPI").checked == true)

    {

        format = 'image/png';

        tiledSPI = new OpenLayers.Layer.WMS (

            "Project:SPI - TiledHydrologicNetwork",

            "http://localhost:8080/geoserver/Project/wms",
```

```
{
    LAYERS: 'Project:Stream Power Index',
    STYLES: "",
    format: format,
    transparent: "true",
    tiled: true,
    tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
},
{
    buffer : 0,
    displayOutsideMaxExtent: true,
    isBaseLayer: false,
    yx : {'EPSG:2100' : true}
}
);

map.addLayer (tiledSPI);

myZoom ();
}

else
{
    map.removeLayer (tiledSPI);
}
}

var tiledShapefiles;

function myShapefiles ()
{
```

```
if (document.getElementById ("myShapefiles").checked == true)
{

format = 'image/png';

tiledShapefiles = new OpenLayers.Layer.WMS (
    "Project:Catchment - TiledHydrologicNetwork",
    "http://localhost:8080/geoserver/tasos/wms",
    {
        LAYERS: 'tasos:Catchment',
        STYLES: "",
        format: format,
        transparent: "true",
        tiled: true,
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
    },
    {
        buffer : 0,
        displayOutsideMaxExtent: true,
        isBaseLayer: false,
        yx : {'EPSG:4326' : true}
    }
);

map.addLayer (tiledShapefiles);

myZoom ();
```

```
document.getElementById ("myDIV").innerHTML="<b></b> Shapefiles
working!!!! ";

}

else

{

    map.removeLayer (tiledShapefiles);

}

}

function myFunctionLandslides ()

{

document.getElementById ("myDIV").innerHTML="CheckboxLandslides Text";

}

// Checkboxes Landslides myMorfometric

var tiledMorfometricSerresPIAHillshade;

function myMorfometricSerresPIAHillshade ()

{

if (document.getElementById ("myMorfometricSerresPIAHillshade").checked == true)

{

format = 'image/png';

tiledMorfometricSerresPIAHillshade = new OpenLayers.Layer.WMS (

    "tasos:Serres_PIA-_Hillshade",

    "http://localhost:8080/geoserver/tasos/wms",

    {
```



```
LAYERS: 'tasos:Serres_PIA- _Hillshade',  
  
STYLES: ",  
  
format: format,  
  
transparent: "true",  
  
  
tiled: true,  
  
tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
},  
{  
  
buffer : 0,  
  
displayOutsideMaxExtent: true,  
  
isBaseLayer: false,  
  
yx : {'EPSG:4326' : true}  
}  
);  
  
map.addLayer (tiledMorfometricSerresPIAHillshade);  
  
myZoom ();  
  
var x = document.getElementById  
("StylemyMorfometricSerresPIAHillshade").innerHTML;  
  
document.getElementById ("myDIV2").innerHTML = x;  
  
//document.getElementById("myDIV").innerHTML="<b></b> Morfometric  
working!!!! ";  
  
}  
  
else  
  
{  
  
map.removeLayer (tiledMorfometricSerresPIAHillshade);
```

```
}  
  
}  
  
var tiledMorfometricSerresPIASlope;  
  
function myMorfometricSerresPIASlope ()  
{  
  
if (document.getElementById ("myMorfometricSerresPIASlope").checked == true)  
{  
  
format = 'image/png';  
  
tiledMorfometricSerresPIASlope = new OpenLayers.Layer.WMS (  
    "Project:Serres_PIA- _Slope",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:Serres_PIA- _Slope',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
}
```

```
);

map.addLayer (tiledMorfometricSerresPIASlope);

myZoom ();

var x = document.getElementById ("StylemyMorfometricSerresPIASlope").innerHTML;
document.getElementById ("myDIV2").innerHTML = x;

//document.getElementById("myDIV").innerHTML="<b></b> Morfometric
working!!!! ";

}
else
{
    map.removeLayer (tiledMorfometricSerresPIASlope);
}
}

var tiledMorfometricSerresPIADEM;
function myMorfometricSerresPIADEM ()
{

if (document.getElementById ("myMorfometricSerresPIADEM").checked == true)
{

format = 'image/png';

tiledMorfometricSerresPIADEM = new OpenLayers.Layer.WMS (

    "Project:Serres_PIA- _DEM",
    "http://localhost:8080/geoserver/Project/wms",
```

```
{
    LAYERS: 'Project:Serres_PIA-_DEM',
    STYLES: "",
    format: format,
    transparent: "true",
    tiled: true,
    tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
},
{
    buffer : 0,
    displayOutsideMaxExtent: true,
    isBaseLayer: false,
    yx : {'EPSG:4326' : true}
}
);

map.addLayer (tiledMorfometricSerresPIADEM);

myZoom ();

var x = document.getElementById ("StylemyMorfometricSerresPIADEM").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;

//document.getElementById("myDIV").innerHTML="<b></b> Morfometric
working!!!! ";
}

else

{

    map.removeLayer (tiledMorfometricSerresPIADEM);

}

}
```

```
var tiledMorfometricSerresPIARelief;  
  
function myMorfometricSerresPIARelief ()  
{  
  
if (document.getElementById ("myMorfometricSerresPIARelief").checked == true)  
{  
  
format = 'image/png';  
  
  
tiledMorfometricSerresPIARelief = new OpenLayers.Layer.WMS (  
    "Project:Serres_PIA- _Relief",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'test:Serres_PIA- _Relief',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
}
```

```
);

map.addLayer (tiledMorfometricSerresPIARelief);

myZoom ();

var x = document.getElementById ("StylemyMorfometricSerresPIARelief").innerHTML;
document.getElementById ("myDIV2").innerHTML = x;

//document.getElementById("myDIV").innerHTML="<b></b> Morfometric Relief
working!!!! ";

}

else

{

    map.removeLayer (tiledMorfometricSerresPIARelief);

}

}

// Checkboxes Landslides myGeneralTopodata

var tiledGeneralTopodataSerresPIAmainRoads;

function myGeneralTopodataSerresPIAmainRoads ()

{

if (document.getElementById ("myGeneralTopodataSerresPIAmainRoads").checked ==
true)

{

format = 'image/png';

tiledGeneralTopodataSerresPIAmainRoads = new OpenLayers.Layer.WMS (

    "Project:Serres_PIA-_main_Roads",
```

| | |
|--------------------|--------------------------------------|
| Deliverable-No. | D.02.03 |
| Issue: I.04 | Date: 29 th November 2015 |

```
map.removeLayer (tiledGeneralTopodataSerresPIAmainRoads);

}

}

var tiledGeneralTopodataSerresPIARoadNetwork;

function myGeneralTopodataSerresPIARoadNetwork ()

{

if (document.getElementById ("myGeneralTopodataSerresPIARoadNetwork").checked
== true)

{

format = 'image/png';

tiledGeneralTopodataSerresPIARoadNetwork = new OpenLayers.Layer.WMS (

    "Project:Serres_PIA- _Road_Network",

    "http://localhost:8080/geoserver/Project/wms",

    {

        LAYERS: 'Project:Serres_PIA- _Road_Network',

        STYLES: "",

        format: format,

        transparent: "true",

        tiled: true,

        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom

    },

    {

        buffer : 0,

        displayOutsideMaxExtent: true,

        isBaseLayer: false,
```



```
        yx : {'EPSG:4326' : true}
    }
);

    map.addLayer (tiledGeneralTopodataSerresPIARoadNetwork);

    myZoom ();

var x = document.getElementById
("StylemyGeneralTopodataSerresPIARoadNetwork").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;
}
else
{
    map.removeLayer (tiledGeneralTopodataSerresPIARoadNetwork);
}
}

var tiledGeneralTopodataSerresPIACORINE;

function myGeneralTopodataSerresPIACORINE ()
{

if (document.getElementById ("myGeneralTopodataSerresPIACORINE").checked ==
true)
{

format = 'image/png';

tiledGeneralTopodataSerresPIACORINE = new OpenLayers.Layer.WMS (

    "Project:Serres_PIA-_CORINE",

    "http://localhost:8080/geoserver/Project/wms",
```

```
{
    LAYERS: 'Project:Serres_PIA-_CORINE',
    STYLES: "",
    format: format,
    transparent: "true",
    tiled: true,
    tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
},
{
    buffer : 0,
    displayOutsideMaxExtent: true,
    isBaseLayer: false,
    yx : {'EPSG:4326' : true}
}
);

map.addLayer (tiledGeneralTopodataSerresPIACORINE);

myZoom ();

var x = document.getElementById
("StylemyGeneralTopodataSerresPIACORINE").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;
}
else
{
    map.removeLayer (tiledGeneralTopodataSerresPIACORINE);
}
}
```

```
var tiledGeneralTopodataSerresPIARecordedLandslides;

function myGeneralTopodataSerresPIARecordedLandslides ()

{

    if (document.getElementById
("myGeneralTopodataSerresPIARecordedLandslides").checked == true)

    {

        format = 'image/png';

        tiledGeneralTopodataSerresPIARecordedLandslides = new OpenLayers.Layer.WMS (

            "Project:Serres_PIA-_Recorded_Landslides",

            "http://localhost:8080/geoserver/Project/wms",

            {

                LAYERS: 'Project:Serres_PIA-_Recorded_Landslides',

                STYLES: "",

                format: format,

                transparent: "true",

                tiled: true,

                tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom

            },

            {

                buffer : 0,

                displayOutsideMaxExtent: true,

                isBaseLayer: false,

                yx : {'EPSG:4326' : true}

            }

        )

    }

}
```

```
);

map.addLayer (tiledGeneralTopodataSerresPIARecordedLandslides);

myZoom ();

var x = document.getElementById
("StylemyGeneralTopodataSerresPIARecordedLandslides").
innerHTML;

document.getElementById ("myDIV2").innerHTML = x;
}
else
{
    map.removeLayer (tiledGeneralTopodataSerresPIARecordedLandslides);
}
}

var tiledGeneralTopodataSerresPIAElevationPoints;

function myGeneralTopodataSerresPIAElevationPoints ()
{

if (document.getElementById
("myGeneralTopodataSerresPIAElevationPoints").checked == true)
{

format = 'image/png';

tiledGeneralTopodataSerresPIAElevationPoints = new OpenLayers.Layer.WMS (
    "Project:Serres_PIA-_Elevation_Points",
    "http://localhost:8080/geoserver/Project/wms",
    {
        LAYERS: 'Project:Serres_PIA-_Elevation_Points',
```

```
        STYLES: ",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
);  
  
    map.addLayer (tiledGeneralTopodataSerresPIAElevationPoints);  
  
    myZoom ();  
  
var x = document.getElementById  
("StylemyGeneralTopodataSerresPIAElevationPoints").innerHTML;  
  
document.getElementById ("myDIV2").innerHTML = x;  
}  
else  
{  
    map.removeLayer (tiledGeneralTopodataSerresPIAElevationPoints);  
}  
}
```

```
var tiledGeneralTopodataSerresPIAContours;  
  
function myGeneralTopodataSerresPIAContours ()  
{  
  
if (document.getElementById ("myGeneralTopodataSerresPIAContours").checked ==  
true)  
{  
  
format = 'image/png';  
  
tiledGeneralTopodataSerresPIAContours = new OpenLayers.Layer.WMS (  
    "Project:Serres_PIA-_Contours",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:Serres_PIA-_Contours',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
);
```

```
        map.addLayer (tiledGeneralTopodataSerresPIAContours);

        myZoom ();

var x = document.getElementById
("StylemyGeneralTopodataSerresPIAContours").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;

}

else

{

    map.removeLayer (tiledGeneralTopodataSerresPIAContours);

}

}

var tiledGeneralTopodataSerresPIAUrbanareas;

function myGeneralTopodataSerresPIAUrbanareas ()

{

if (document.getElementById ("myGeneralTopodataSerresPIAUrbanareas").checked ==
true)

{

format = 'image/png';

tiledGeneralTopodataSerresPIAUrbanareas = new OpenLayers.Layer.WMS (

    "Project:Serres_PIA- _Urban_areas",

    "http://localhost:8080/geoserver/Project/wms",

    {

        LAYERS: 'Project:Serres_PIA- _Urban_areas',

        STYLES: "",

        format: format,
```

```
        transparent: "true",

        tiled: true,

        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
    },
    {
        buffer : 0,

        displayOutsideMaxExtent: true,

        isBaseLayer: false,

        yx : {'EPSG:4326' : true}
    }
);

    map.addLayer (tiledGeneralTopodataSerresPIAUrbanareas);

    myZoom ();

var x = document.getElementById
("StylemyGeneralTopodataSerresPIAUrbanareas").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;

}

else

{

    map.removeLayer (tiledGeneralTopodataSerresPIAUrbanareas);

}

}

// Seismic

var tiledSeismicSerresPIAPGA;

function mySeismicSerresPIAPGA ()
```



```
{

if (document.getElementById ("mySeismicSerresPIAPGA").checked == true)

{

format = 'image/png';

    tiledSeismicSerresPIAPGA = new OpenLayers.Layer.WMS (

        "Project:Serres_PIA- _PGA",

        "http://localhost:8080/geoserver/Project/wms",

        {

            LAYERS: 'Project:Serres_PIA- _PGA',

            STYLES: "",

            format: format,

            transparent: "true",

            tiled: true,

            tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom

        },

        {

            buffer : 0,


            displayOutsideMaxExtent: true,

            isBaseLayer: false,

            yx : {'EPSG:4326' : true}

        }

    );
```

```
        map.addLayer (tiledSeismicSerresPIAPGA);

        myZoom ();

        //document.getElementById("myDIV").innerHTML="<b></b> Morfometric
        working!!!! ";
    }
    else
    {
        map.removeLayer (tiledSeismicSerresPIAPGA);
    }
}

var tiledSeismicSerresPIAPGA475;
function mySeismicSerresPIAPGA475 ()
{

    if (document.getElementById ("mySeismicSerresPIAPGA475").checked == true)
    {

        format = 'image/png';

        tiledSeismicSerresPIAPGA475 = new OpenLayers.Layer.WMS (
            "Project:Serres_PIA-_PGA475",
            "http://localhost:8080/geoserver/Project/wms",
            {
                LAYERS: 'Project:Serres_PIA-_PGA475',
                STYLES: "",
                format: format,
                transparent: "true",
                tiled: true,
```

```
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
    },
    {
        buffer : 0,
        displayOutsideMaxExtent: true,
        isBaseLayer: false,
        yx : {'EPSG:4326' : true}
    }
);

map.addLayer (tiledSeismicSerresPIAPGA475);
myZoom ();

//document.getElementById("myDIV").innerHTML="<b></b> Morfometric
working!!!! ";
}
else
{
    map.removeLayer (tiledSeismicSerresPIAPGA475);
}
}
```

// Engineering Geology

```
var tiledEngineeringGeologySerresPIATectonicStructures;

function myEngineeringGeologySerresPIATectonicStructures ()
{
```

```
if (document.getElementById  
("myEngineeringGeologySerresPIATectonicStructures").checked ==  
  
true)  
  
{  
  
  
  
format = 'image/png';  
  
    tiledEngineeringGeologySerresPIATectonicStructures = new OpenLayers.Layer.WMS (  
        "Project:Serres_PIA-_Tectonic_structures",  
        "http://localhost:8080/geoserver/Project/wms",  
        {  
            LAYERS: 'Project:Serres_PIA-_Tectonic_structures',  
            STYLES: "",  
            format: format,  
            transparent: "true",  
            tiled: true,  
            tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
        },  
        {  
            buffer : 0,  
            displayOutsideMaxExtent: true,  
            isBaseLayer: false,  
            yx : {'EPSG:4326' : true}  
        }  
    );  
  
    map.addLayer (tiledEngineeringGeologySerresPIATectonicStructures);  
  
    myZoom ();
```

```
//document.getElementById("myDIV").innerHTML="<b></b> Morfometric  
working!!!! ";
```

```
}
```

```
else
```

```
{
```

```
    map.removeLayer (tiledEngineeringGeologySerresPIATectonicStructures);
```

```
}
```

```
}
```

```
var tiledEngineeringGeologySerresPIALineaments;
```

```
function myEngineeringGeologySerresPIALineaments ()
```

```
{
```

```
if (document.getElementById  
("myEngineeringGeologySerresPIALineaments").checked == true)
```

```
{
```

```
format = 'image/png';
```

```
tiledEngineeringGeologySerresPIALineaments = new OpenLayers.Layer.WMS (
```

```
    "Project:Serres_PIA- _Lineaments",
```

```
    "http://localhost:8080/geoserver/Project/wms",
```

```
{
```

```
    LAYERS: 'Project:Serres_PIA- _Lineaments',
```

```
    STYLES: "",
```

```
    format: format,
```

```
    transparent: "true",
```

```
        tiled: true,

        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom

    },

    {

        buffer : 0,

        displayOutsideMaxExtent: true,

        isBaseLayer: false,

        yx : {'EPSG:4326' : true}

    }

);

    map.addLayer (tiledEngineeringGeologySerresPIALineaments);

    myZoom ();

    //document.getElementById("myDIV").innerHTML="<b></b> Morfometric
    working!!!! ";

}

else

{

    map.removeLayer (tiledEngineeringGeologySerresPIALineaments);

}

}

var tiledEngineeringGeologySerresPIADipDir;

function myEngineeringGeologySerresPIADipDir ()

{

    if (document.getElementById ("myEngineeringGeologySerresPIADipDir").checked ==
    true)

    {
```

```
format = 'image/png';

tiledEngineeringGeologySerresPIADipDir = new OpenLayers.Layer.WMS (

    "Project:Serres_PIA- _DipDir",

    "http://localhost:8080/geoserver/Project/wms",

    {

        LAYERS: 'Project:Serres_PIA- _DipDir',

        STYLES: "",

        format: format,

        transparent: "true",

        tiled: true,

        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom

    },

    {

        buffer : 0,

        displayOutsideMaxExtent: true,

        isBaseLayer: false,

        yx : {'EPSG:4326' : true}

    }

);

map.addLayer (tiledEngineeringGeologySerresPIADipDir);

myZoom ();

//document.getElementById("myDIV").innerHTML="<b></b> Morfometric
working!!!! ";

}

else

{
```

```
map.removeLayer (tiledEngineeringGeologySerresPIADipDir);  
  
}  
  
}  
  
var tiledEngineeringGeologySerresPIAGeology;  
  
function myEngineeringGeologySerresPIAGeology ()  
{  
  
if (document.getElementById ("myEngineeringGeologySerresPIAGeology").checked ==  
true)  
{  
  
format = 'image/png';  
  
tiledEngineeringGeologySerresPIAGeology = new OpenLayers.Layer.WMS (  
    "Project:Serres_PIA- _Geology",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:Serres_PIA- _Geology',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {
```



```
        buffer : 0,

        displayOutsideMaxExtent: true,

        isBaseLayer: false,

        yx : {'EPSG:4326' : true}

    }

);

    map.addLayer (tiledEngineeringGeologySerresPIAGeology);

    myZoom ();

    //document.getElementById("myDIV").innerHTML="<b></b> Morfometric
    working!!!! ";

}

else

{

    map.removeLayer (tiledEngineeringGeologySerresPIAGeology);

}

}

var tiledEngineeringGeologySerresPIATOBIAindex;

function myEngineeringGeologySerresPIATOBIAindex ()

{

    if (document.getElementById
    ("myEngineeringGeologySerresPIATOBIAindex").checked == true)

    {

        format = 'image/png';

        tiledEngineeringGeologySerresPIATOBIAindex = new OpenLayers.Layer.WMS (

            "Project:Serres_PIA-TOBIA_index",
```

```
"http://localhost:8080/geoserver/Project/wms",  
  
{  
  
    LAYERS: 'Project:Serres_PIA-TOBIA_index',  
    STYLES: "",  
    format: format,  
    transparent: "true",  
    tiled: true,  
    tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
},  
{  
    buffer : 0,  
    displayOutsideMaxExtent: true,  
    isBaseLayer: false,  
    yx : {'EPSG:4326' : true}  
}  
);  
  
map.addLayer (tiledEngineeringGeologySerresPIATOBIIndex);  
myZoom ();  
  
//document.getElementById("myDIV").innerHTML="<b></b> Morfometric  
working!!!! ";  
  
}  
  
else  
  
{  
  
    map.removeLayer (tiledEngineeringGeologySerresPIATOBIIndex);
```

```
}  
  
}  
  
var tiledEngineeringGeologySerresPIATOBIAclasses;  
  
function myEngineeringGeologySerresPIATOBIAclasses ()  
{  
  
if (document.getElementById  
("myEngineeringGeologySerresPIATOBIAclasses").checked == true)  
{  
  
format = 'image/png';  
  
tiledEngineeringGeologySerresPIATOBIAclasses = new OpenLayers.Layer.WMS (  
    "Project:Serres_PIA-TOBIA_classes",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:Serres_PIA-TOBIA_classes',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}
```

```
    }  
    );  
  
    map.addLayer (tiledEngineeringGeologySerresPIATOBIAClasses);  
  
    myZoom ();  
  
    //document.getElementById("myDIV").innerHTML="<b></b> Morfometric  
working!!!! ";  
  
}  
else  
{  
    map.removeLayer (tiledEngineeringGeologySerresPIATOBIAClasses);  
}  
}  
  
//Checkboxes Landslides Meteo  
  
var tiledMeteoSerresPIAMeteoStations; //Not working because of Symbology  
function myMeteoSerresPIAMeteoStations ()  
{  
  
    if (document.getElementById ("myMeteoSerresPIAMeteoStations").checked == true)  
    {  
  
        format = 'image/png';  
  
        tiledMeteoSerresPIAMeteoStations = new OpenLayers.Layer.WMS (
```

```
"Project:Serres_PIA_MeteoStations",  
"http://localhost:8080/geoserver/Project/wms",  
{  
    LAYERS: 'Project:Serres_PIA_MeteoStations',  
    STYLES: "",  
    format: format,  
    transparent: "true",  
    tiled: true,  
    tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
},  
{  
    buffer : 0,  
    displayOutsideMaxExtent: true,  
    isBaseLayer: false,  
    yx : {'EPSG:4326' : true}  
}  
);  
  
map.addLayer (tiledMeteoSerresPIAMeteoStations);  
myZoom ();  
  
//document.getElementById("myDIV").innerHTML="<b></b> Morfometric  
working!!!! ";  
}  
else  
{  
    map.removeLayer (tiledMeteoSerresPIAMeteoStations);  
}  
}
```

```
var tiledMeteoSerresPIAMeanAnnualRainfall;

function myMeteoSerresPIAMeanAnnualRainfall ()

{

if (document.getElementById ("myMeteoSerresPIAMeanAnnualRainfall").checked ==
true)

{

format = 'image/png';

tiledMeteoSerresPIAMeanAnnualRainfall = new OpenLayers.Layer.WMS (

    "Project:Serres_PIA_MeanAnnualRainfall",

    "http://localhost:8080/geoserver/Project/wms",

    {

        LAYERS: 'Project:Serres_PIA_MeanAnnualRainfall',

        STYLES: "",

        format: format,

        transparent: "true",

        tiled: true,

        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom

    },

    {

        buffer : 0,

        displayOutsideMaxExtent: true,

        isBaseLayer: false,

        yx : {'EPSG:4326' : true}
```

```
    }

    );

    map.addLayer (tiledMeteoSerresPIAMeanAnnualRainfall);

    myZoom ();

    //document.getElementById("myDIV").innerHTML="<b></b> Morfometric
    working!!!! ";
}
else
{
    map.removeLayer (tiledMeteoSerresPIAMeanAnnualRainfall);
}
}

//Checkboxes HazUS

var tiledmyHazUSSerresPIAFEMAslopeclass;
function myHazUSSerresPIAFEMAslopeclass ()
{

if (document.getElementById ("myHazUSSerresPIAFEMAslopeclass").checked == true)
{

format = 'image/png';

tiledmyHazUSSerresPIAFEMAslopeclass = new OpenLayers.Layer.WMS (

    "Project:Serres_PIA-_FEMA_slope_class",

    "http://localhost:8080/geoserver/Project/wms",

    {
```

```
        LAYERS: 'Project:Serres_PIA-_FEMA_slope_class',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
);  
  
    map.addLayer (tiledmyHazUSSerresPIAFEMAslopeclass);  
    myZoom ();  
  
}  
else  
{  
    map.removeLayer (tiledmyHazUSSerresPIAFEMAslopeclass);  
}  
}
```


//Checkboxes Mora & Vahrson

```
var tiledMoraVahrsonSerresPIALandslideHazardIndicatorMVHL;  
  
function myMoraVahrsonSerresPIALandslideHazardIndicatorMVHL ()  
{  
  
    if (document.getElementById  
        ("myMoraVahrsonSerresPIALandslideHazardIndicatorMVHL").checked ==  
        true)  
    {  
  
        format = 'image/png';  
  
        tiledMoraVahrsonSerresPIALandslideHazardIndicatorMVHL = new  
        OpenLayers.Layer.WMS (  
            "Project:Serres_PIA-_Landslide_Hazard_Indicator-MV_HL",  
            "http://localhost:8080/geoserver/Project/wms",  
            {  
                LAYERS: 'Project:Serres_PIA-_Landslide_Hazard_Indicator-MV_HL',  
                STYLES: "",  
                format: format,  
                transparent: "true",  
                tiled: true,  
                tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
            },  
            {  
                buffer : 0,  
                displayOutsideMaxExtent: true,  
                isBaseLayer: false,  
                yx : {'EPSG:4326' : true}
```

```
    }  
    );  
  
    map.addLayer (tiledMoraVahrsonSerresPIALandslideHazardIndicatorMVHL);  
    myZoom ();  
  
}  
else  
{  
    map.removeLayer (tiledMoraVahrsonSerresPIALandslideHazardIndicatorMVHL);  
}  
}  
  
var tiledMoraVahrsonSerresPIAMVHLLineaments;  
function myMoraVahrsonSerresPIAMVHLLineaments ()  
{  
  
    if (document.getElementById ("myMoraVahrsonSerresPIAMVHLLineaments").checked  
    == true)  
    {  
  
        format = 'image/png';  
  
        tiledMoraVahrsonSerresPIAMVHLLineaments = new OpenLayers.Layer.WMS (  
            "Project:Serres_PIA_MV_HL_Lineaments",  
            "http://localhost:8080/geoserver/Project/wms",  
            {  

```

```
LAYERS: 'Project:Serres_PIA_MV_HL_Lineaments',  
  
STYLES: "",  
  
format: format,  
  
transparent: "true",  
  
tiled: true,  
  
tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
  
},  
  
{  
  
    buffer : 0,  
  
    displayOutsideMaxExtent: true,  
  
    isBaseLayer: false,  
  
    yx : {'EPSG:4326' : true}  
  
}  
  
);  
  
map.addLayer (tiledMoraVahrsonSerresPIAMVHLLineaments);  
  
myZoom ();  
  
}  
  
else  
  
{  
  
    map.removeLayer (tiledMoraVahrsonSerresPIAMVHLLineaments);  
  
}  
  
}  
  
var tiledMoraVahrsonSerresPIAMVSh;  
  
function myMoraVahrsonSerresPIAMVSh ()  
  
{
```

```
if (document.getElementById ("myMoraVahrsonSerresPIAMVSh").checked == true)
{

format = 'image/png';

    tiledMoraVahrsonSerresPIAMVSh = new OpenLayers.Layer.WMS (
        "Project:Serres_PIA-_MV_Sh",
        "http://localhost:8080/geoserver/Project/wms",
        {
            LAYERS: 'Project:Serres_PIA-_MV_Sh',

            STYLES: "",
            format: format,
            transparent: "true",
            tiled: true,
            tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
        },
        {
            buffer : 0,
            displayOutsideMaxExtent: true,
            isBaseLayer: false,
            yx : {'EPSG:4326' : true}
        }
    );

    map.addLayer (tiledMoraVahrsonSerresPIAMVSh);

    myZoom ();
```

```
}  
  
else  
  
{  
  
    map.removeLayer (tiledMoraVahrsonSerresPIAMVSh);  
  
}  
  
}  
  
  
var tiledMoraVahrsonSerresPIASLMV;  
  
function myMoraVahrsonSerresPIASLMV ()  
{  
  
  
  
  
  
  
if (document.getElementById ("myMoraVahrsonSerresPIASLMV").checked == true)  
{  
  
  
  
  
  
  
format = 'image/png';  
  
tiledMoraVahrsonSerresPIASLMV = new OpenLayers.Layer.WMS (  
    "Project:Serres_PIA-_SL_MV",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:Serres_PIA-_SL_MV',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {
```

```
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
);  
  
map.addLayer (tiledMoraVahrsonSerresPIASLMV);  
myZoom ();  
  
}  
else  
{  
    map.removeLayer (tiledMoraVahrsonSerresPIASLMV);  
}  
}  
  
var tiledMoraVahrsonSerresPIAMVsr;  
function myMoraVahrsonSerresPIAMVsr ()  
{  
  
    if (document.getElementById ("myMoraVahrsonSerresPIAMVsr").checked == true)  
    {  
  
        format = 'image/png';  
  
        tiledMoraVahrsonSerresPIAMVsr = new OpenLayers.Layer.WMS (
```

```
"Project:Serres_PIA-_MV_Sr",  
"http://localhost:8080/geoserver/Project/wms",  
{  
    LAYERS: 'Project:Serres_PIA-_MV_Sr',  
    STYLES: "",  
    format: format,  
    transparent: "true",  
    tiled: true,  
    tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
},  
{  
    buffer : 0,  
    displayOutsideMaxExtent: true,  
    isBaseLayer: false,  
    yx : {'EPSG:4326' : true}  
}  
);  
  
map.addLayer (tiledMoraVahrsonSerresPIAMVsr);  
myZoom ();  
  
}  
else  
{  
    map.removeLayer (tiledMoraVahrsonSerresPIAMVsr);  
}  
}
```

```
var tiledMoraVahrsonSerresPIAMVTp;  
  
function myMoraVahrsonSerresPIAMVTp ()  
{  
  
if (document.getElementById ("myMoraVahrsonSerresPIAMVTp").checked == true)  
{  
  
format = 'image/png';  
  
tiledMoraVahrsonSerresPIAMVTp = new OpenLayers.Layer.WMS (  
    "Project:Serres_PIA-_MV_Tp",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:Serres_PIA-_MV_Tp',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
);
```



```
        map.addLayer (tiledMoraVahrsonSerresPIAMVTp);

        myZoom ();

    }

    else

    {

        map.removeLayer (tiledMoraVahrsonSerresPIAMVTp);

    }

}

var tiledMoraVahrsonSerresPIAMVTS;

function myMoraVahrsonSerresPIAMVTS ()

{

    if (document.getElementById ("myMoraVahrsonSerresPIAMVTS").checked == true)

    {

        format = 'image/png';

        tiledMoraVahrsonSerresPIAMVTS = new OpenLayers.Layer.WMS (

            "Project:Serres_PIA-_MV_TS",

            "http://localhost:8080/geoserver/Project/wms",

            {

                LAYERS: 'Project:Serres_PIA-_MV_TS',

                STYLES: "",

                format: format,

                transparent: "true",

                tiled: true,

                tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
```

```
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,  
        yx : {'EPSG:4326' : true}  
    }  
);  
  
    map.addLayer (tiledMoraVahrsonSerresPIAMVTS);  
    myZoom ();  
  
}  
else  
{  
    map.removeLayer (tiledMoraVahrsonSerresPIAMVTS);  
}  
}  
  
//Checkboxes Factor of Safety  
  
var tiledFactorOfSafetyFSVarThickWET;  
function myFactorOfSafetyFSVarThickWET ()  
{  
  
    if (document.getElementById ("myFactorOfSafetyFSVarThickWET").checked == true)
```

```
{

format = 'image/png';

    tiledFactorOfSafetyFSVarThickWET = new OpenLayers.Layer.WMS (

        "Project:FS_VarThick_WET",
        "http://localhost:8080/geoserver/Project/wms",

        {

            LAYERS: 'Project:FS_VarThick_WET',

            STYLES: "",

            format: format,

            transparent: "true",

            tiled: true,

            tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom

        },

        {

            buffer : 0,

            displayOutsideMaxExtent: true,

            isBaseLayer: false,

            yx : {'EPSG:4326' : true}

        }

    );

    map.addLayer (tiledFactorOfSafetyFSVarThickWET);

    myZoom ();

var x = document.getElementById
("StylemyFactorOfSafetyFSVarThickWET").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;

}

else
```

```
{  
    map.removeLayer (tiledFactorOfSafetyFSVarThickWET);  
}  
}  
  
var tiledFactorOfSafetyFSseisVariableThickness;  
function myFactorOfSafetyFSseisVariableThickness ()  
  
{  
  
if (document.getElementById ("myFactorOfSafetyFSseisVariableThickness").checked  
== true)  
{  
  
format = 'image/png';  
  
tiledFactorOfSafetyFSseisVariableThickness = new OpenLayers.Layer.WMS (  
    "Project:FS_seis_VariableThickness",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:FS_seis_VariableThickness',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {
```

```
        buffer : 0,

        displayOutsideMaxExtent: true,

        isBaseLayer: false,

        yx : {'EPSG:4326' : true}

    }

);

    map.addLayer (tiledFactorOfSafetyFSseisVariableThickness);

    myZoom ();

var x = document.getElementById
("StylemyFactorOfSafetyFSseisVariableThickness").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;

}

else

{

    map.removeLayer (tiledFactorOfSafetyFSseisVariableThickness);

}

}

var tiledFactorOfSafetyFSdeterm10mLineaments;

function myFactorOfSafetyFSdeterm10mLineaments ()

{

    if (document.getElementById ("myFactorOfSafetyFSdeterm10mLineaments").checked
    == true)

    {

        format = 'image/png';

        tiledFactorOfSafetyFSdeterm10mLineaments = new OpenLayers.Layer.WMS (
```

```
"Project:FS_determ_10m_Lineaments",
"http://localhost:8080/geoserver/Project/wms",
{
    LAYERS: 'Project:FS_determ_10m_Lineaments',
    STYLES: "",
    format: format,
    transparent: "true",
    tiled: true,

    tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom
},
{
    buffer : 0,
    displayOutsideMaxExtent: true,
    isBaseLayer: false,
    yx : {'EPSG:4326' : true}
}
);

map.addLayer (tiledFactorOfSafetyFSdeterm10mLineaments);

myZoom ();

var x = document.getElementById
("StylemyFactorOfSafetyFSdeterm10mLineaments").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;
}

else

{
```

```
map.removeLayer (tiledFactorOfSafetyFSdeterm10mLineaments);  
  
}  
  
}  
  
var tiledFactorOfSafetyFs5mwetLineaments;  
  
function myFactorOfSafetyFs5mwetLineaments ()  
{  
  
if (document.getElementById ("myFactorOfSafetyFs5mwetLineaments").checked ==  
true)  
{  
  
format = 'image/png';  
  
tiledFactorOfSafetyFs5mwetLineaments = new OpenLayers.Layer.WMS (  
    "Project:Fs_5m_wet_Lineaments",  
    "http://localhost:8080/geoserver/Project/wms",  
    {  
        LAYERS: 'Project:Fs_5m_wet_Lineaments',  
        STYLES: "",  
        format: format,  
        transparent: "true",  
        tiled: true,  
        tilesOrigin : map.maxExtent.left + ',' + map.maxExtent.bottom  
    },  
    {  
        buffer : 0,  
        displayOutsideMaxExtent: true,  
        isBaseLayer: false,
```

```
        yx : {'EPSG:4326' : true}
    }
);

    map.addLayer (tiledFactorOfSafetyFs5mwetLineaments);

    myZoom ();

var x = document.getElementById
("StylemyFactorOfSafetyFSdeterm10mLineaments").innerHTML;

document.getElementById ("myDIV2").innerHTML = x;
}
else
{

    map.removeLayer (tiledFactorOfSafetyFs5mwetLineaments);
}
}

</script>

<style>
body {color:black;}
h1 {color:#00ff00;}
p.ex {color:rgb(0,0,255);}
</style>

</head>

<body>
```



```
<!-- center PANE -->
```

```
<div class="ui-layout-center">
```

```
<div id="map-id"></div>
```

```
<script>
```

```
var map = new OpenLayers.Map ("map-id");
```

```
var arrayOSM = ["http://otile1.mqcdn.com/tiles/1.0.0/map/${z}/${x}/${y}.jpg",
```

```
    "http://otile2.mqcdn.com/tiles/1.0.0/map/${z}/${x}/${y}.jpg",
```

```
    "http://otile3.mqcdn.com/tiles/1.0.0/map/${z}/${x}/${y}.jpg",
```

```
    "http://otile4.mqcdn.com/tiles/1.0.0/map/${z}/${x}/${y}.jpg"];
```

```
var baseOSM = new OpenLayers.Layer.OSM ("MapQuest-OSM Tiles",  
arrayOSM,{
```

```
    attribution:"Open Street Maps, Tasos Agrianidis Janouary 2014"});
```

```
map.addLayer (baseOSM);
```

```
map.setCenter (
```

```
new OpenLayers.LonLat (34.000,45.000).transform(
```

```
    new OpenLayers.Projection ("EPSG:4326"),map.getProjectionObject ()), 5  
);
```

```
</script>
```

```
<script>
```

```
document.getElementById ("myDIV").innerHTML="Hello World_Unchecked";

// WMS LAYERS

format = 'image/png';

var wms2 = new OpenLayers.Layer.WMS ("Project:partners_all - Untiled",

"http://localhost:8080/geoserver/Project/wms",

{

LAYERS: 'Project:partners_all',

STYLES: "",

format: format

},

{

singleTile: true,

ratio: 1,

isBaseLayer: true,

yx : {'EPSG:4326' : true}

}

);

map.addLayer (wms2);

//}

// setup single tiled layer

untiled = new OpenLayers.Layer.WMS (

"Project:partners_all - Untiled",

"http://localhost:8080/geoserver/Project/wms",

{
```

```
        LAYERS: 'Project:partners_all',

        STYLES: "",

        format: format

    },

    {

        singleTile: true,

        ratio: 1,

        isBaseLayer: true,

        yx : {'EPSG:4326' : true}

    }

);

map.addLayers ([untiled, tiled]);

// build up all controls

map.addControl (new OpenLayers.Control.PanZoomBar ({

    position : new OpenLayers.Pixel (2, 15)

}));

map.addControl (new OpenLayers.Control.Navigation ());

map.addControl (new OpenLayers.Control.Scale ($('scale')));

map.addControl (new OpenLayers.Control.MousePosition ({element: $

('location'

})));

map.zoomToExtent (bounds);

</script>

</div>
```

<!-- HEADER OR NORTH PANE -->

<DIV id="page_header" >

</DIV>

<div class="ui-layout-west">

<!-- Pane CENTER -->

<div class="ui-layout-center">

<!-- for now... -->

 Overall objective

The global objective is to achieve a strong regional partnership and cooperation by the

Development of a Scientific Network for the establishment a scientific consensus, in order

to setup common strategies and natural hazard prevention methods.

The Scientific Network members will work together sharing competencies and resources to

address earthquake, landslide and flood hazards which does have Trans - boundary

consequences both on the economy and on the environment.

Specific objectives

Setup common terminology, methodologies and strategies for Earthquake, Landslide and

Flood Hazards ELFH prevention.

Development of a Web Gis Platform that will support decision making and will also

provide data and information to the scientific community interested in Earthquake, Landslide

and Flood Hazards (ELFH), that promoting research and innovation regarding natural hazard's

prevention and preparedness in the Black Sea area.

Implement finally selected(developed or adapted) methodologies to access hazards on a

regional scale and on local scale in selected locations.

Provide training with open seminars and workshops.

**Locations of the joint Action **

Greece : Kentriki Makedonia-Serres , Anatoliki Makedonia Thraki-Komotini, Evros/Marica

river catchment within the eligible area, all towns

Bulgaria : Yogostochen, Evros/Marica river within the eligible area, all towns)

Turkey : Tekirdaq, Evros river catchment within the eligible area, all towns, Istanbul,

the wider area of Samsun.

Romania : NUTS II region of the South-East, Danube river delta wider area, all cities

Moldova : Moldova, Danube river delta wider area

Ukraine : Odessa, Danube river delta wider area, all cities

Test

<!--<p id="myDIV"></p-->

</div>

<!-- WEST PANE -->

<div class="ui-layout-west" >

<p>

<div id="accordion1" class="basic">

<h3>About SciNetNatHaz</h3>

<p><input type="checkbox" id="myCheck"
onclick=

"myFunction()">Partners</p>

<h3>Base
Layers</h3>

<div>

<p><input type="checkbox"
id="myStreamNetwork"

onclick="myStreamNetwork()">Stream Network</p>

<p><input type="checkbox" id="myCLC200"
onclick="myCLC200()"

>Corine Land cover 2000</p>

<p id="demo"></p>

</p>

</div>

<h3>Earthquakes</h3>

<div>

<p>

<h3>CheckboxEarthquakes</h3>

<input type="checkbox" id="myEarthquakes"
onclick="myFunctionEarthquakes()">Select

<p id="demoEarthquakes"></p>

</p>

</div>

<h3>Floods</h3>

<div>

<p>

<p><input type="checkbox" id=

"myHydrologicNetwork" onclick="myHydrologicNetwork()">Hydrologic
network</p>

<p><input type="checkbox"
id="myCatchment"

onclick="myCatchment()">Catchment</p>

<p><input type="checkbox" id="myTWI"
onclick="myTWI()">

Topographic Wetness Index</p>

<p><input type="checkbox" id="mySPI"
onclick="mySPI()">

Stream Power Index</p>

<p><input type="checkbox"
id="myShapefiles"

onclick="myShapefiles()">SShapefiles</p>

<p id="demoFloods"></p>

</p>

</div>

<h3>Landslides</h3>

<div>

<p>

<h3>CheckboxLandslides</h3>

<input type="checkbox" id="myLandslides"
onclick="myFunctionLandslides()">Select

<h3>Morfometric</h3>

<p><input type="checkbox" id=

"myMorfometricSerresPIAHillshade"
onclick="myMorfometricSerresPIAHillshade()">

Serres PIA Hillshade</p>

<p><input type="checkbox" id=

"myMorfometricSerresPIASlope"
onclick="myMorfometricSerresPIASlope()">Serres PIA

Slope</p>

<p><input type="checkbox" id=

"myMorfometricSerresPIADEM"
onclick="myMorfometricSerresPIADEM()">Serres PIA DEM

</p>

<p><input type="checkbox" id=

"myMorfometricSerresPIARelief"
onclick="myMorfometricSerresPIARelief()">Serres

PIA Relief</p>

<h3>General & Topo data</h3>

<p><input type="checkbox"

id="myGeneralTopodataSerresPIAmainRoads" onclick=

"myGeneralTopodataSerresPIAmainRoads()">Serres PIA main_Roads</p>

<p><input type=

"checkbox" id="myGeneralTopodataSerresPIARoadNetwork" onclick=

"myGeneralTopodataSerresPIARoadNetwork()">Serres PIA
Road_Network</p>

<p><input type="checkbox" id

```

="myGeneralTopodataSerresPIACORINE"
onclick="myGeneralTopodataSerresPIACORINE()">

Serres PIA CORINE</a></p>

<p><a
onmouseover="myFGeneralTopodataSerresPIARecordedLandslides()"><input type=
"checkbox" id=
"myGeneralTopodataSerresPIARecordedLandslides" onclick=
"myGeneralTopodataSerresPIARecordedLandslides()">Serres PIA Recorded
Landslides
</a></p>

<p><a
onmouseover="myFGeneralTopodataSerresPIAElevationPoints()"><input type=
"checkbox" id="myGeneralTopodataSerresPIAElevationPoints" onclick=
"myGeneralTopodataSerresPIAElevationPoints()">Serres PIA Elevation
Points</a></p>

<p><a onmouseover="myFGeneralTopodataSerresPIAContours()"><input
type="checkbox"
id="myGeneralTopodataSerresPIAContours" onclick=
"myGeneralTopodataSerresPIAContours()">Serres PIA Contours</a></p>

<p><a onmouseover="myFGeneralTopodataSerresPIAUrbanareas()"><input
type=
"checkbox" id="myGeneralTopodataSerresPIAUrbanareas" onclick=
"myGeneralTopodataSerresPIAUrbanareas()">Serres PIA Urban areas</a></p>

<h3>Seismic</h3>

<p><a onmouseover="myFSeismicSerresPIAPGA()"><input type="checkbox"
id=
"mySeismicSerresPIAPGA" onclick="mySeismicSerresPIAPGA()">Serres PIA
- PGA</a></p>

<p><a onmouseover="myFSeismicSerresPIAPGA475()"><input
type="checkbox" id=
"mySeismicSerresPIAPGA475"
onclick="mySeismicSerresPIAPGA475()">Serres PIA-

```

PGA475

Engineering Geology

```

<p><a
onmouseover="myFEngineeringGeologySerresPIATectonicStructures()"><input

type="checkbox" id="myEngineeringGeologySerresPIATectonicStructures"
onclick=

"myEngineeringGeologySerresPIATectonicStructures()">Serres PIA- Tectonic
Structures</p>

<p><a
onmouseover="myFEngineeringGeologySerresPIALineaments()"><input type=

"checkbox" id="myEngineeringGeologySerresPIALineaments" onclick=

"myEngineeringGeologySerresPIALineaments()">Serres PIA-
Lineaments</a></p>

<p><a onmouseover="myFEngineeringGeologySerresPIADipDir()"><input
type="checkbox"

id="myEngineeringGeologySerresPIADipDir" onclick=

"myEngineeringGeologySerresPIADipDir()">Serres PIA- DipDir</a></p>

<p><a onmouseover="myFEngineeringGeologySerresPIAGeology()"><input
type=

"checkbox" id="myEngineeringGeologySerresPIAGeology" onclick=

"myEngineeringGeologySerresPIAGeology()">Serres PIA- Geology</a></p>

<p><a
onmouseover="myFEngineeringGeologySerresPIATOBIAindex()"><input type=

"checkbox" id="myEngineeringGeologySerresPIATOBIAindex" onclick=

"myEngineeringGeologySerresPIATOBIAindex()">Serres PIA- TOBIA
index</a></p>

<p><a
onmouseover="myFEngineeringGeologySerresPIATOBIAclasses()"><input type=

"checkbox" id="myEngineeringGeologySerresPIATOBIAclasses" onclick=

"myEngineeringGeologySerresPIATOBIAclasses()">Serres PIA- TOBIA
classes</a></p>

```

<h3>Meteo</h3>

<p><input type="checkbox" id=

"myMeteoSerresPIAMeteoStations" onclick="myMeteoSerresPIAMeteoStations()">Serres

PIA MeteoStations</p>

<p><input type="checkbox" id=

"myMeteoSerresPIAMeanAnnualRainfall" onclick=

"myMeteoSerresPIAMeanAnnualRainfall()">Serres PIA MeanAnnualRainfall</p>

<h3>HazUS</h3>

<p><input type="checkbox" id=

"myHazUSSerresPIAFEMAslopeclass" onclick="myHazUSSerresPIAFEMAslopeclass()">

Serres PIA FEMA slope class</p>

<h3>Mora & Vahrson</h3>

<p><input type="checkbox" id=

"myMoraVahrsonSerresPIALandslideHazardIndicatorMVHL" onclick=

"myMoraVahrsonSerresPIALandslideHazardIndicatorMVHL()">Serres PIA-Landslide

Hazard Indicator-MV HL</p>

<p><input type=

"checkbox" id="myMoraVahrsonSerresPIAMVHLLineaments" onclick=

"myMoraVahrsonSerresPIAMVHLLineaments()">Serres PIA MV HL Lineaments</p>

<p><input type="checkbox" id=

"myMoraVahrsonSerresPIAMVSh"
onclick="myMoraVahrsonSerresPIAMVSh()">Serres

PIA-MV Sh</p>

<p><input
type="checkbox" id=

"myMoraVahrsonSerresPIASLMV"
onclick="myMoraVahrsonSerresPIASLMV()">Serres

PIA-SL MV</p>

<p><input
type="checkbox" id=

"myMoraVahrsonSerresPIAMVSr"
onclick="myMoraVahrsonSerresPIAMVSr()">Serres

PIA-MV Sr</p>

<p><input
type="checkbox" id=

"myMoraVahrsonSerresPIAMVTp"
onclick="myMoraVahrsonSerresPIAMVTp()">Serres

PIA-MV Tp</p>

<p><input
type="checkbox" id=

"myMoraVahrsonSerresPIAMVTS"
onclick="myMoraVahrsonSerresPIAMVTS()">Serres

PIA-MV TS</p>

<h3>Factor of Safety</h3>

<p><input
type="checkbox" id=

"myFactorOfSafetyFSVarThickWET"
onclick="myFactorOfSafetyFSVarThickWET()">FS

VarThick WET</p>

<p><input
type=

"checkbox" id="myFactorOfSafetyFSseisVariableThickness" onclick=

"myFactorOfSafetyFSseisVariableThickness()">FS seis
VariableThickness</p>

<p><input type=

"checkbox" id="myFactorOfSafetyFSdeterm10mLineaments" onclick=

"myFactorOfSafetyFSdeterm10mLineaments()">FS determ 10m Lineaments</p>

<p><input type="checkbox"

id="myFactorOfSafetyFs5mwetLineaments" onclick=

"myFactorOfSafetyFs5mwetLineaments()">Fs 5m wet Lineaments</p>

<p id="demoLandslides"></p>

</p>

</div>

</div>

</div>

</div>

<div id="map"></div>

<script>

</script>

</body>

</html>

