Geotechnologien-Projekt EXUPÉRY

– KOORDINATOREN: TORSTEN DAHM, MATTHIAS HORT, JOACHIM WASSERMANN –

Summary of 2nd Exupéry Workshop in Munich Dec 8/9th, 2008

Next to the below listed presentations we had an extensive discussion about database and GIS. We draw some conclusions that are listed below. What we would like to point out to are the tasks that have to be finished as soon as possible.

Monday, Dec. 8th 2008

Exupéry database	H.P. Stittgen / R. Barsch
Capabilities of the old systems	J. Wassermann
GIS Interface	Jenoptik

Tuesday, Dec. 9th 2008

Presentation of test experiment, overview, current status, problems	M. Hort

Tasks to finish

Everyone (even those who already delivered the data) have to deliver an example of **XML** file (according to the defined structure using tags that are defined in the end of this document) as well as at least one **corresponding data example** file until next Monday **Dec. 15th 2008**, better till Friday Dec. 12th, 2008. These files should be sent directly to Hans-Peter Stittgen (stittgen@sdac.hannover.bgr.de). It might be that he contacts you in order to adopt the XML scheme.

You also need to answer the remaining **questions on the JenOptik handout**. Just number them from top to bottom i.e. Q1–Q10. I will answer questions Q3, and Q6–Q10 below. Send your answers to Kathrin Weise (kathrin.weise@jena-optronik.de).

Next everyone needs to supply a **list of queries** she/he would like to run on the data. These queries are needed by Robert Barsch as well as the JenOptik. They need those to prepare the PostgreSQL data table which is used to display the information in the GIS system. Everyone also needs to **define which sub-layers** he wants in the layer menu. In order to prepare the PostgreSQL table you also need to provide him the **attributes** you would like to display in each sub-layer (this concerns only the vector data) – an example for stations:

x y z point on/off quality date/time

Send the list of queries and the table (the same deadline as above) to Robert Barsch (barsch@geophysik.uni-muenchen.de), Hans-Peter Stittgen (stittgen@sdac.hannover.bgr.de) and Stefan Bernsdorf (gruener.heinrich@googlemail.com).

Final agreements

The **display of time series** will not be done through tables, but will be taken care of by an URL available in GIS, which will then be execute a small program which displays the data in on top of (I guess) the GIS window.

The **Sao Miguel map** file as well as the photos can be downloaded from the following FTP site ftp.zmaw.de/outgoing/mhort/Exupery/ starting this Thursday (Dec. 11th, 2008). The data will be in the server for about a week.

The **"standards"** that we defined (some were defined already on previous meetings):

- metadata are stored in XML (an example file containing standard tags is on the last page),
- KML is used to store PSI data,
- GEOTIFF is used for raster data (in case of problems, look at http://www.gdal.org/),
- coordinate system is always geographical (decimal degrees, negative for west longitudes and south latitudes),
- the coordinate system reference is WGS84 (also the elevation and depth – negative values – are measured in meters along the normal to the ellipsoid from its surface),
- displacements are always in meters,
- project ID will be given on the beginning of each project,
- volcano ID can be found for each volcano on the web (Global Volcanism – http://www.volcano.si.edu),
- file sizes are always in byte,
- Dates and times are in ISO8601 with a "T" as separator: 2008-12-09T20:21:00.000000,
- time is always in UTC.

Next meeting

The next meeting will take place in **Hamburg, Feb. 10th till Feb 12th, 2009**. The first and the half of second day will be used to test the data acquisition system including some sample WLAN stations. Till that time the final decision regarding the seismological recoding system has to be made (Seiscomp3 or Earthworm), i.e. if Seiscomp3 shall be used, it has to be decided who is taking care of delivering a running version of Seiscomp3 on the Exupéry computer and who is supplying the necessary utilities to display data etc. I guess this need to be discussed and decided in the next 2 weeks between Torsten, Matthias and Joachim.

Questions of JenOptik:

Q3: This is hard ton answer. During the Exupéry test it will certainly depend on the use. As we are not really clear which data are actually stored in the data base of the Geoserver (all recorded data will be in the Exupéry data base) this may not be that much. Maybe the JenOptik people can try to determine this in detail by getting in touch with Robert Barsch.

Q6: This is taken care of by the PostgreSQL data table which will be updated each time a new XML Document is stored in the Exupéry data base.

Q7: The data base including sample data sets of each instrument will be ready in the 2nd week of January next year.

Q8: No, but we need user IDs for each user. We do not want passwords shared by different users.

Q9: No.

Q10: To be determined at the end of the project.

Data within the Exupéry

Data	Format	Data Transfer	Display with GIS
IBIS	2 GeoTIFF files		GeoTIFF files
GPS	XML		selected values from XML file via PostGIS (station data) + URL to external program (time series)
DTM	GeoTIFF		GeoTIFF file
MiniDOAS	ASCII		selected values from XML file via PostGIS (station data) + URL to external program (time series)
SO2 images	GeoTIFF + Arcinfo ASCII Grid	FTP	GeoTIFF file Arcinfo ASCII Grid file (?)
SO2 trajectories	GeoTIFF	FTP	GeoTIFF file
InSAR	3 GeoTIFF files + 3 ASCII files		GeoTIFF files
PSI	KML		KML file
Infrared	XML + GeoTIFF	FTP	GeoTIFF file + selected values from XML file via PostGIS
Seismic stations	XML		selected values from XML file via PostGIS
Seismic waveforms	MiniSEED	Seed Link	URL to external program
Seismic events	XML		selected values from XML file via PostGIS + beachballs
Automatic alert level estimation	XML		Alert level (just one value!) will be displayed specially in GIS, since it refers to a whole region instead of a single point
Detection messages	XML		
Waveform activity parameter estimates	MiniSEED		
Moment tensor inversions	?		beachballs
Deformation model simulation and stress field results	XML + ASCII + 4 GeoTIFF files		GeoTIFF files

Sample XML file

```
<?xml version="1.0" encoding="utf-8"?>

<root project_id="ExuperyV1.0" volcano_id="1802-09=">
  <latitude>
    <value>-18.505175</value>
       <lowerUncertainty>3.1105971</lowerUncertainty>
       <upperUncertainty>3.1105971</upperUncertainty>
  </latitude>
  <longitude>
       <value>-69.434608</value>
       <lowerUncertainty>4.4976107</lowerUncertainty>
       <upperUncertainty>4.4976107</upperUncertainty>
  </longitude>

  <range_upperleft>
      <latitude>
        <value>-18.505175</value>
           <lowerUncertainty>3.1105971</lowerUncertainty>
           <upperUncertainty>3.1105971</upperUncertainty>
      </latitude>
         <longitude>
              <value>-69.434608</value>
              <lowerUncertainty>4.4976107</lowerUncertainty>
              <upperUncertainty>4.4976107</upperUncertainty>
         </longitude>
  </range_upperleft>
  <range_lowerright>
      <latitude>
        <value>-18.505175</value>
           <lowerUncertainty>3.1105971</lowerUncertainty>
           <upperUncertainty>3.1105971</upperUncertainty>
      </latitude>
         <longitude>
              <value>-69.434608</value>
              <lowerUncertainty>4.4976107</lowerUncertainty>
              <upperUncertainty>4.4976107</upperUncertainty>
         </longitude>
  </range_lowerright>
  <height>
       <value>112.57594</value>
       <lowerUncertainty>4.1107899</lowerUncertainty>
       <upperUncertainty>4.1107899</upperUncertainty>
  </height>
  <start_datetime>
      <value>2008-11-03T04:46:32.033041</value>
      <value>2008-11-03T04:46:32</value>
      <value>2008-11-03</value>
      <lowerUncertainty>0.29744926</lowerUncertainty>
         <upperUncertainty>0.29744926</upperUncertainty>
  </start_datetime>
  <author></author>

  <comment>blah blub</comment>

  <files>
    <file id="interferogram" format="GeoTIFF" filesize="">
         <original_path>ftp://DLR.de/somebig.file</original_path>
         <local_path>/lokal/path/to/data/filename</local_path>
       </file>
    <file id="waveform" format="MiniSEED" filesize="60000000">
         <original_path>ftp://DLR.de/somebig.file</original_path>
         <local_path>/lokal/path/to/data/filename</local_path>
       </file>
  </files>

</root project_id="ExuperyV1.0" volcano_id="1802-09=">
```