Erasmus Intensive Program (2011-2013) on Hydrography and Geomatics

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Outline

- Introduction - project
- Data acquisition
- Data processing
- Quality control
- Conclusions

Introduction - project

- Erasmus Intensive Program (2011-2013) between 3 partner Universities.

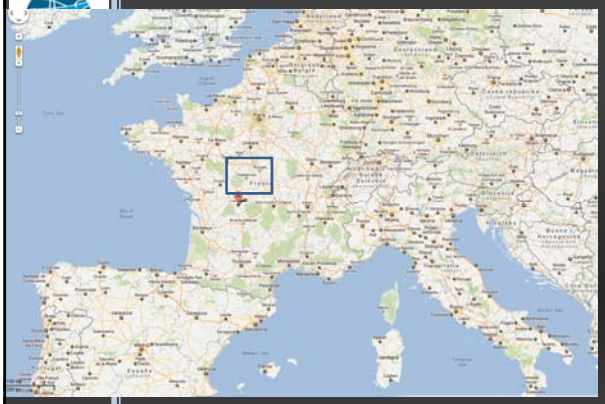
  -ENSTA (Ecole Nationale Superieure des Ingenieurs des Etudes et Techniques d'Armement, BREST, FRANCE)(Prof. N. Seube)

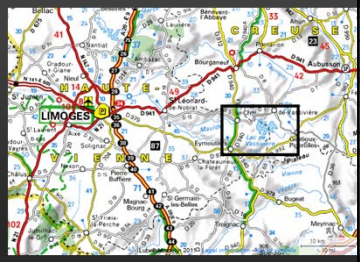
  -UGENT (Ghent University, BELGIUM) (Prof. A. De Wulf)

  -HACU (Hafencity University, HAMBURG, GERMANY) (Prof. V. Boder)

Introduction - project

First cooperation: Hydrographic & topographic survey of Lake Vassivière, Limousin, France (29 Oct – 9 Nov 2011)(ca. 50 students + 12 staff)





Introduction - project

- Cooperation of the 3 partner Universities, with:
  - Boskalis(sponsor)
  - EDF
  - Vassiviere Lake Planning Authority

- Highly detailed bathymetric (IHO-S44, first order) and topographic map

- Lambert 93 coordinate system (France)

- Height reference system IGN69 (France)

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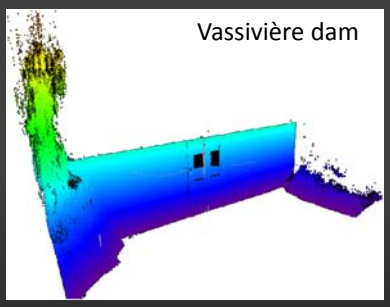
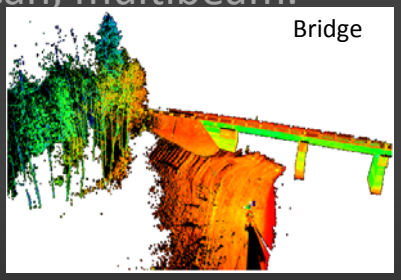
Data acquisition

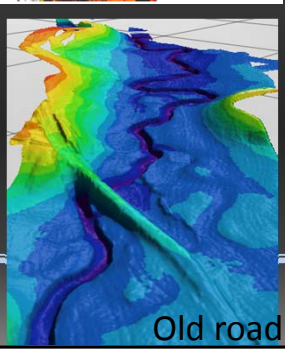
- Bathymetric survey:

Kongsberg Em3002 Multi beam; Leica HDS 6200 laser scanner
Tritech seaking towfish side scan sonar

Hydrographic data acquisition: laserscanning, sidescan, multibeam.







on Hydrography and Geomatics

Topographic data acquisition: GNSS, total station, laserscanning

Total stations (Leica, Pentax, Robotic Trimble)
Trimble RTK GPS using TERIA RTK network (France)
AdNav UHF GPS satellite positioning (local reference)

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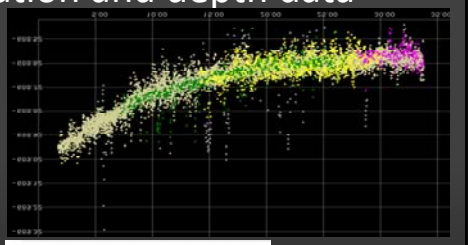
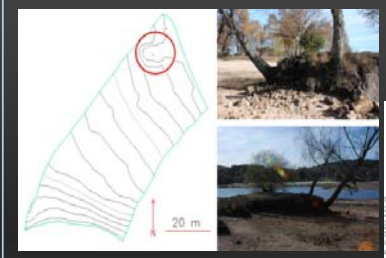
Data processing

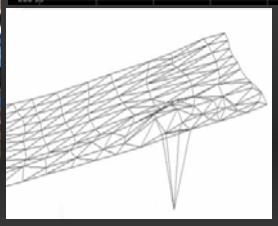
- Validation of navigation and depth data
- Data cleaning



Unclean bottom



Tree line



Topographic outlier

Quality control

- Depth comparison of different surveys of the same area
- Computation of 95 % precision intervals for GPS and total station (< 15 cm)
- Comparison total station – laser scan DEM
- Comparison different GPS systems

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Conclusions

- Highly detailed 3D data sets were acquired

- Still to be completed in 2012 – 2013

- Integration of different measurement techniques was useful for quality assessment

- Requirements of IHO S-44, first order were met

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