

Copernicus KEN

Saulius Urbanas

The Value of Knowledge Exchange Networks

Extraordinary General Assembly
May 2016



KEN Objectives

- KEN objectives
 - Facilitate an access to authoritative Geospatial Reference Data (in-situ GRD) to Copernicus services
 - Monitor new developments and coordinate response or initiate actions toward Copernicus programme implementation
- KEN aim to achieve
 - Recognise NMCAs as authoritative in-situ GRD data providers
 - NMCAs data are in use by Copernicus services



How does it achieve these aims and objectives?

- Collaborative activities with DG GROW, EEA and JRC
 - EEA-EG agreement
 - Study on requirements of in-situ data for Copernicus services
 - EG role facilitating an access to in-situ GRD
- Share best practice from NMCA's on contributions to Copernicus and usefulness of Copernicus assets (e.g. Sentinels)
- Organisation of joined meetings
 - The CoKEN workshop is planned in autumn 2016



Part of the Bigger EuroGeographics Picture

- How do the KEN objectives meet/align with the strategic objectives of EG?
 1. *Provide the voice of our members*
 2. *Develop the network of members*
 3. *Develop the European Location Framework*
 4. *Facilitate access to members' data and expertise*
 5. *Ensure that the Association continues to develop its role and has a sustainable future*



Adding Value to Member NMCA's

- What added value does the KEN provide?
 - Sharing the knowledge, best practice
 - Act collectively discussing the approach contributing to Copernicus
- How does the KEN contribute to the member organisations?
 - Discuss the requirements, issues and feedback from EC and Copernicus users
 - Agree on valuable in-situ GRD contribution to the Copernicus programme
 - Learn how Copernicus and space industry could contribute to national mapping



EuroDEM30 pilot

Pilot for production of DEM30 based on the requirements of EuroControl (TOD - Terrain and Obstacle Data): DE, PL, CZ

	Area 1	Area 2	Area 3	Area 4
Post spacing	3 arc seconds (approx. 90 m)	1 arc second (approx. 30 m)	0.6 arc seconds (approx. 20 m)	0.3 arc seconds (approx. 9 m)
Vertical accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01 m	0.1 m
Horizontal accuracy	50 m	5 m	0.5 m	2.5 m
Confidence level	90%	90%	90%	90%



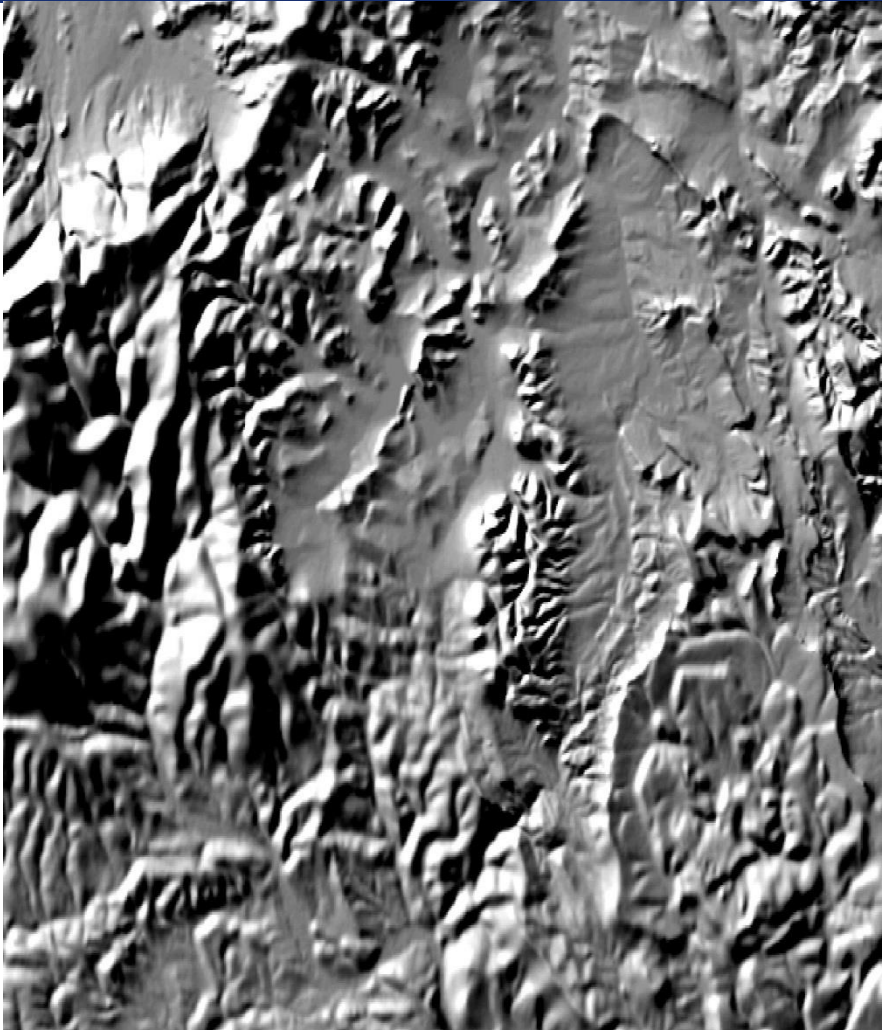
Description of the dataset

- Pan-European Digital Terrain Modell with a grid width of 1 arc second
- Successor to EuroGeographics' EuroDEM (2 arc seconds)
- Pilot dataset contains data from Germany, Poland and a 20km strip of Czech Republic at the borders
- Produced in cooperation with NMCA's
- Seamless dataset that was harmonised at the country borders

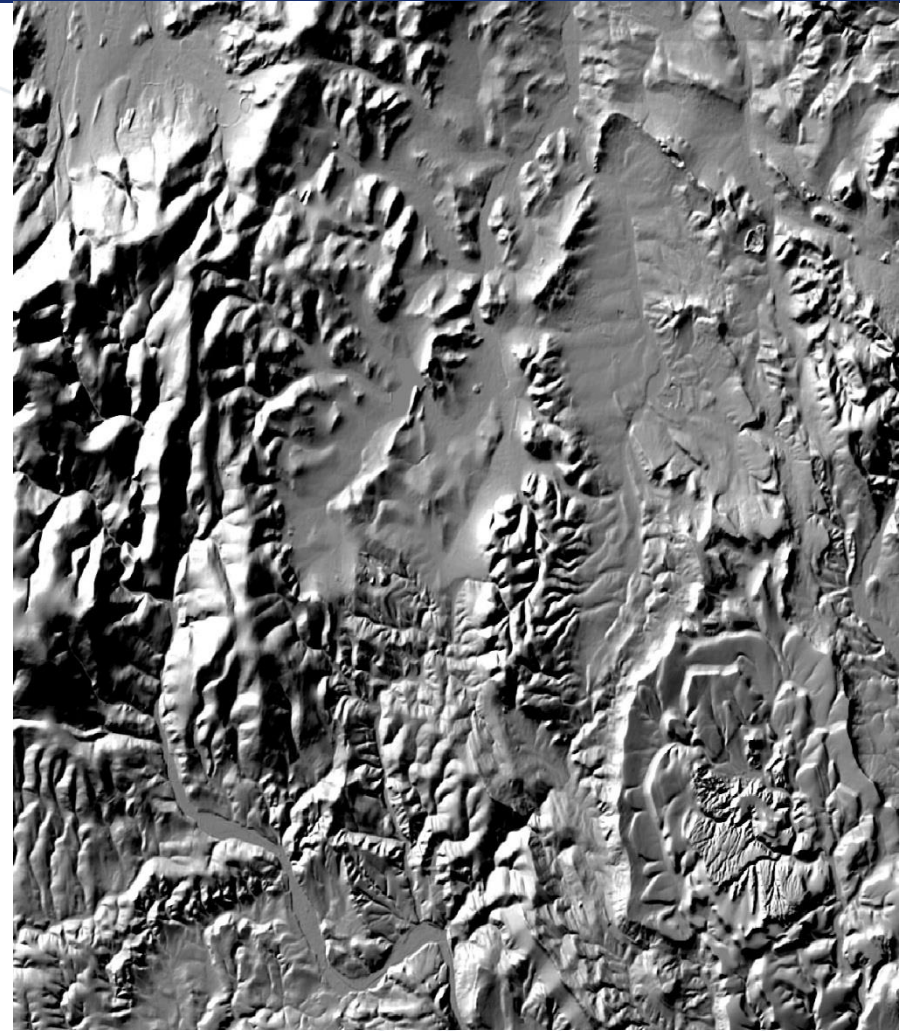


Technical Specification

- Raster data
- ‚Bare earth‘ heights
- Heights were derived by Laserscanning and Stereo-Photogrammetry
- Grid width 1 arc second → ~30m in meridian direction
- 1 – 3 meters vertical accuracy
- Geodetic Datum: ETRS89
- Vertical Datum: EVRS
- File Formats: ESRI Grid, ESRI Grid ASCII, ASCII XYZ

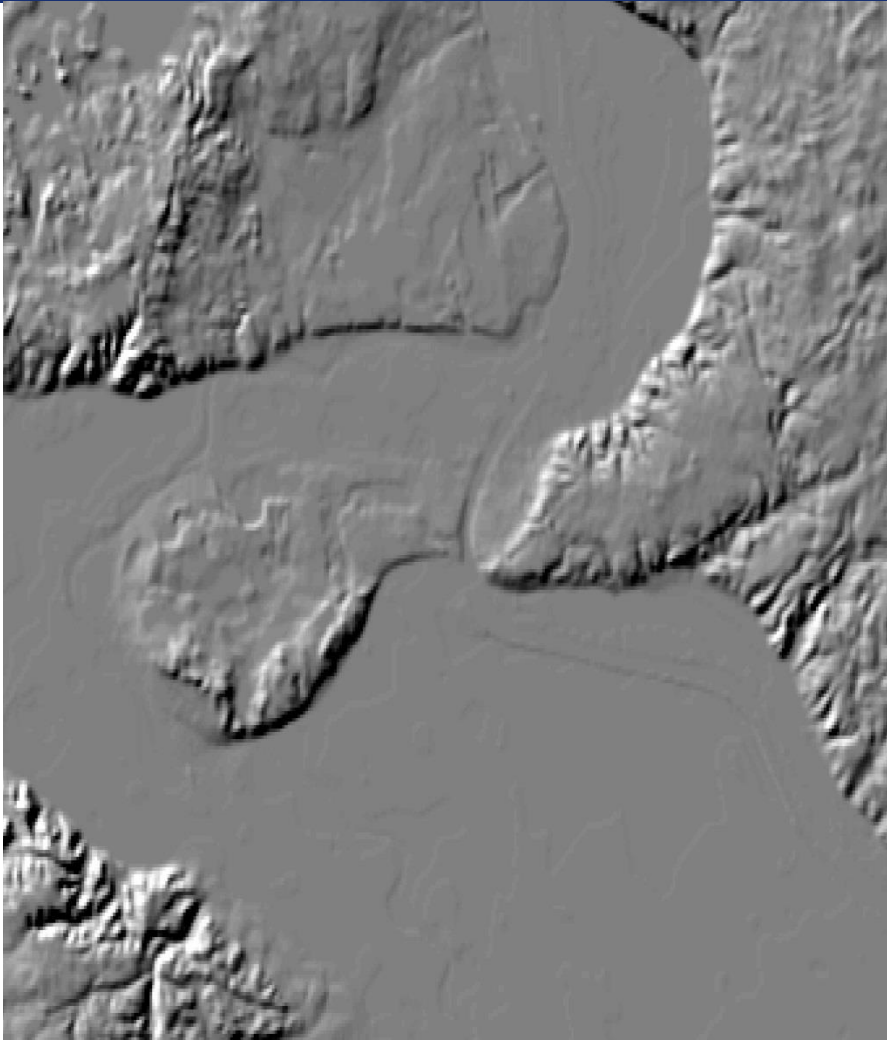


EuroDEM

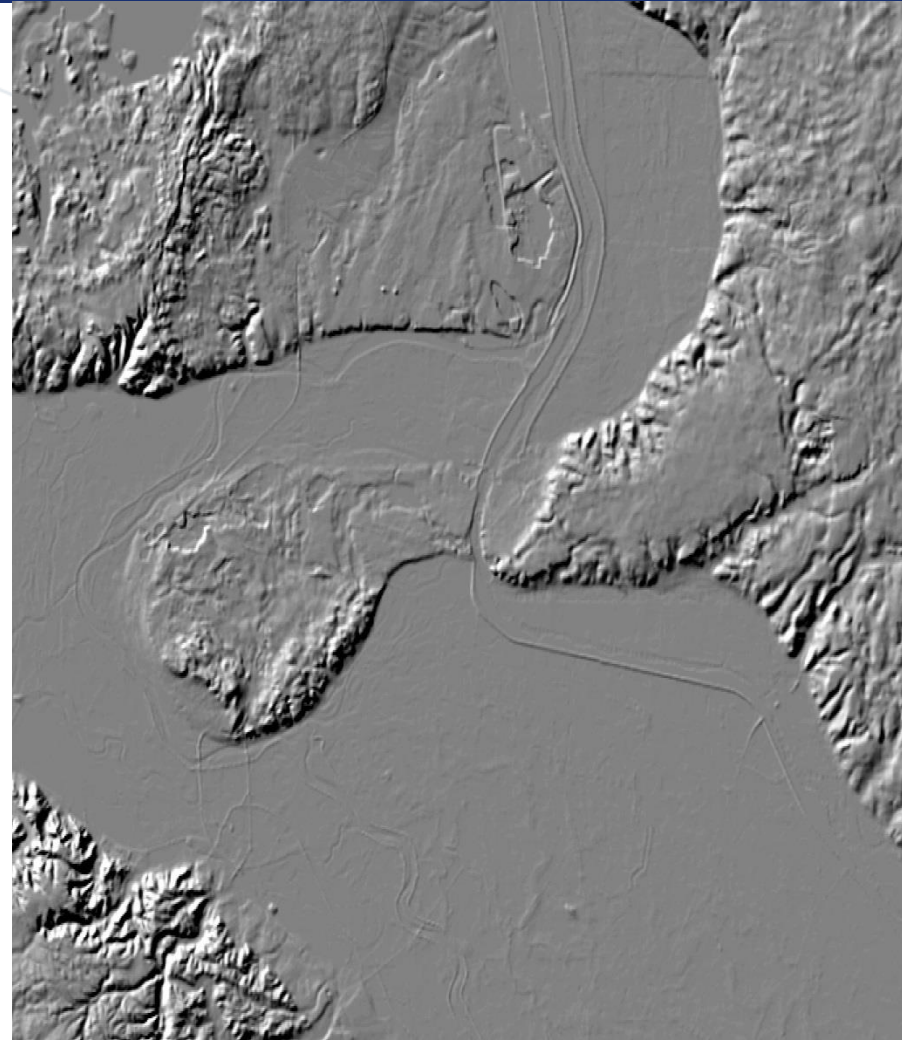


EuroDEM30

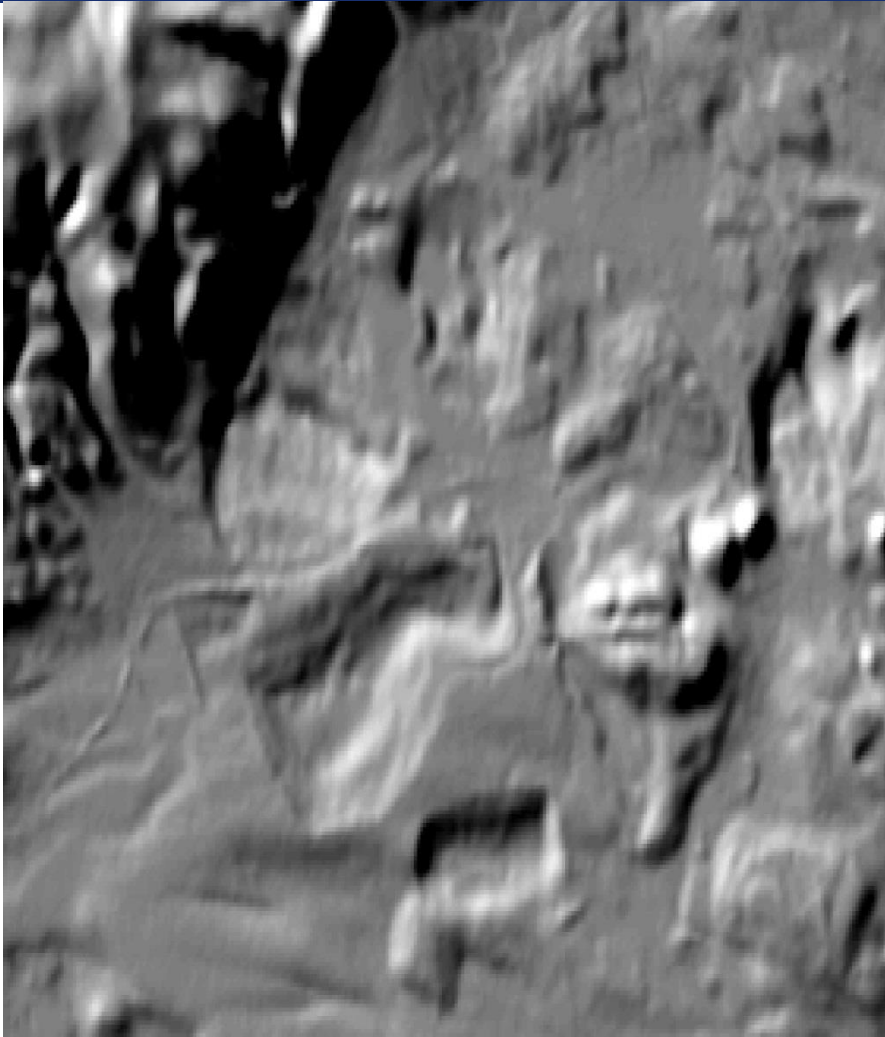
Comparison between EuroDEM and EuroDEM30 – River areas



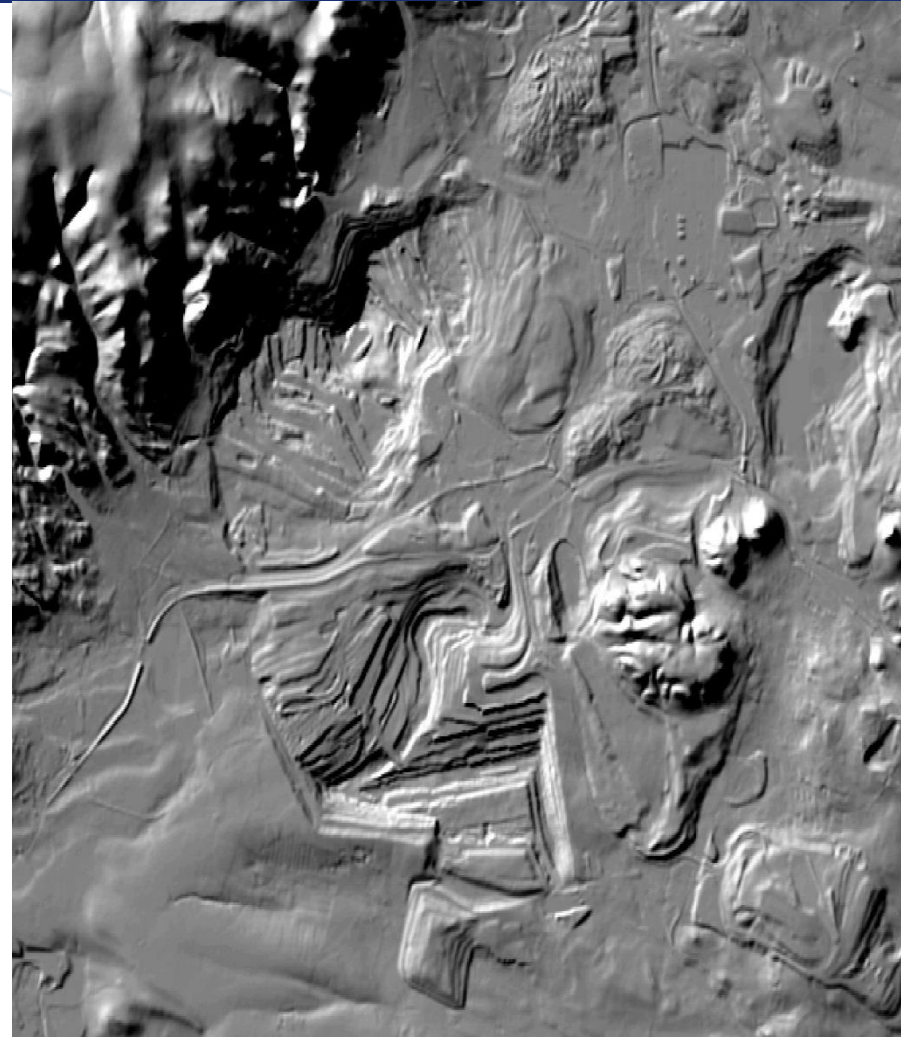
EuroDEM



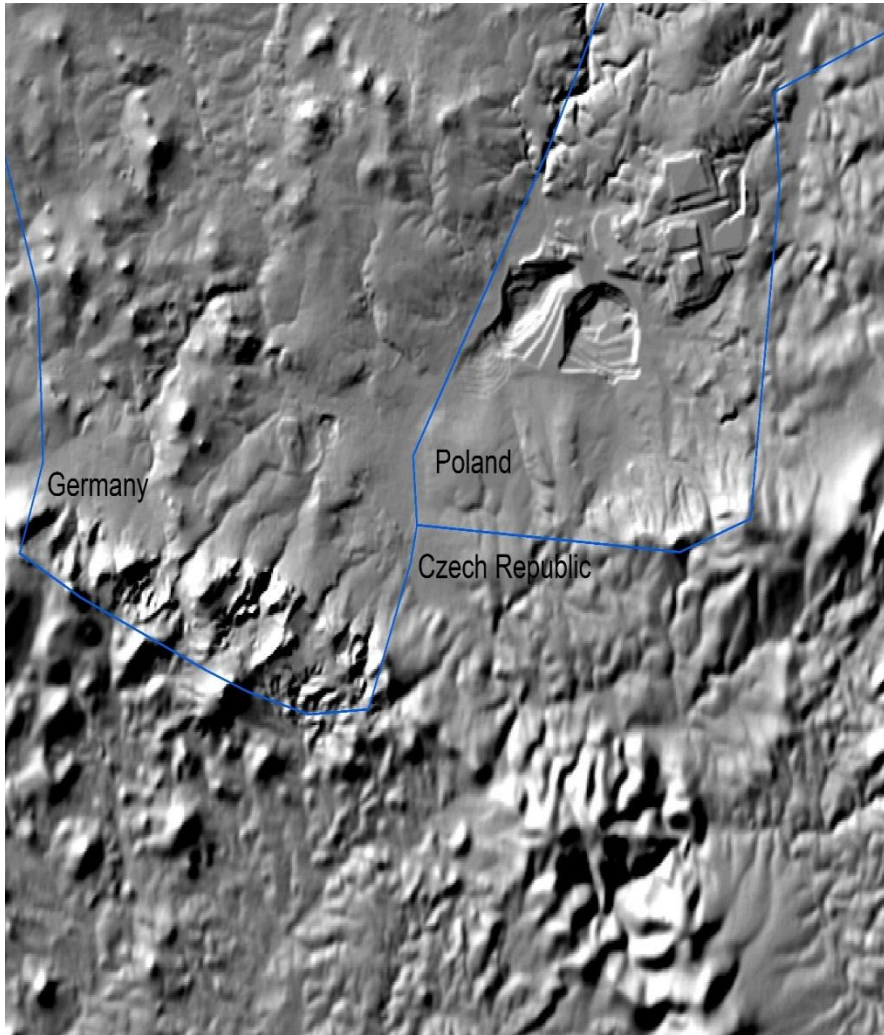
EuroDEM30



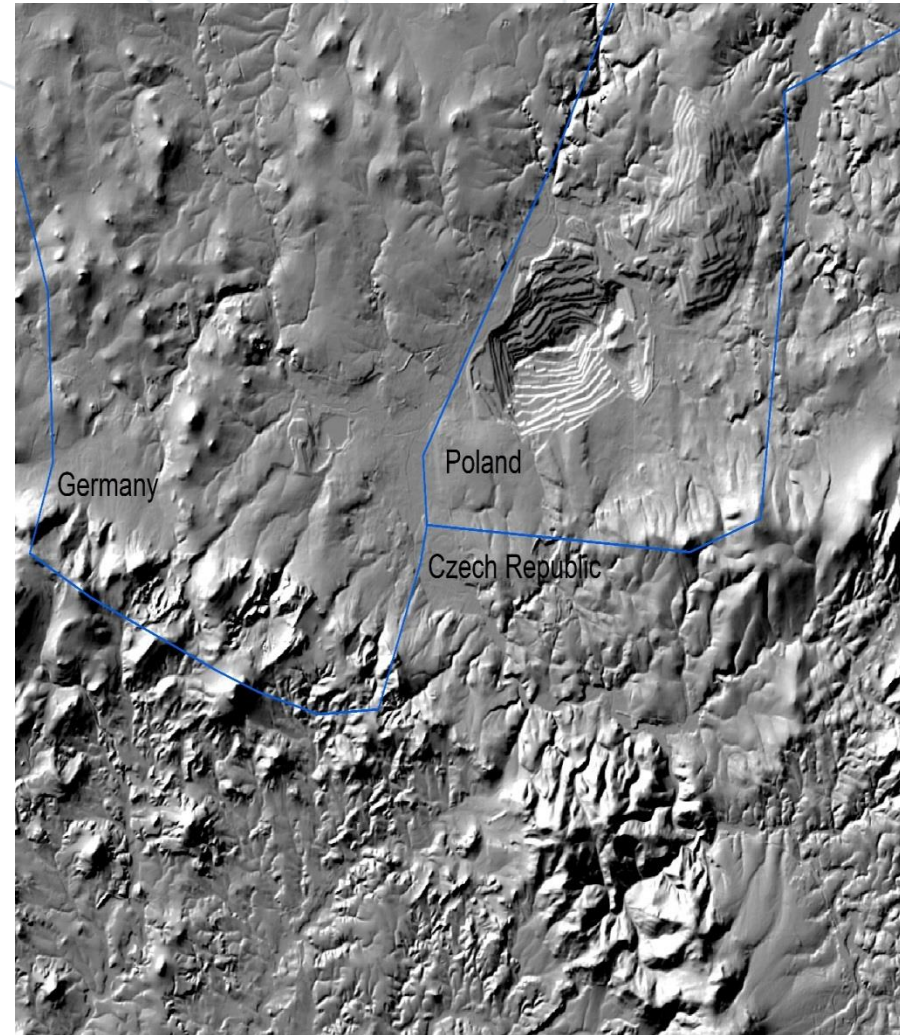
EuroDEM



EuroDEM30



EuroDEM



EuroDEM30

Evaluation results – Lufthansa Systems

- no major issues found
- A visual check of the transition between different countries showed a smooth change between the different source models
- A statistical comparison with multiple independent reference points revealed a few outliers, but the overall results are satisfying
- water bodies are generally correctly modeled
- A particular interesting region when it comes to the usage of EuroDem30 may be the area north of 60°, as standard SRTM data used in many aeronautical applications is not available anymore

Evaluation results Airbus Helicopters

- Data handling: dataset should be in WGS-84
- Elevations rightness: in general is right and better than DTED1 datasets; the summit of Germany, Zugspitze, is observed 21m lower than the known value: 2941m in the EuroDEM30 dataset against 2962m commonly known
 - EG comment: It is an effect of resampling the data to 30m. In case of the Zugspitze the effects of resampling is drastic because of the steepness of this area
- Horizontal position rightness: very correct
- Borders continuity: No discontinuity observed
- Known errors with DTED1 data: Main error known with DTED1 data are not present in EuroDEM30
- Level of data definition: Better level of details, Elevation slopes are better rendered

Prospects

- Dialogue amongst NMCAAs on possible initiation of the EuroDEM30 pan-European product
 - 10-11.05.2016 - Extraordinary General Assembly (Leuven)
 - 2-4.10.2016 – EuroGeographics General Assembly
- Expected outcome: to start a production of the pan-European dataset / web service EuroDEM30 from authoritative sources covering major part of Europe