Completed in Spring 2020: AAGRG´s new recompilation of the Alpine gravity field

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OUTLINE:

➢ Our mission
➢ Data & problems
➢ Products & publication
➢ AAGRG - who is who

Vienna, 07 May, 2020

Mission

The gravity research group focuses on compiling a homogeneous surface-based gravity dataset across the Alpine area, on creating related gravity products and using them *for high resolution interdisciplinary studies* from small to regional to continental scales, as well as for *joint inversion* with other datasets.

The first pan-Alpine gravity data map, will be homogeneous regarding *input data sets, applied methods and all corrections* as well as common *reference frames*, which are not available yet.

All 10 countries around the Alps have agreed to contribute with *point /gridded gravity data and/or gravity data processing techniques* to a recompilation of the Alpine gravity.

The AAGRG decided to present a first data set of the new gravity fields (BA, FA, ISA, mass corrections) at the time of the EGU Annual Meeting 2020 on a *2km x 2km and 4km x 4km grid* for the public.

Data & Problems

➢ *Gravity*

    Local-national gravity reference system vs. Absolute reference systems, coverage

➢ *Positions*

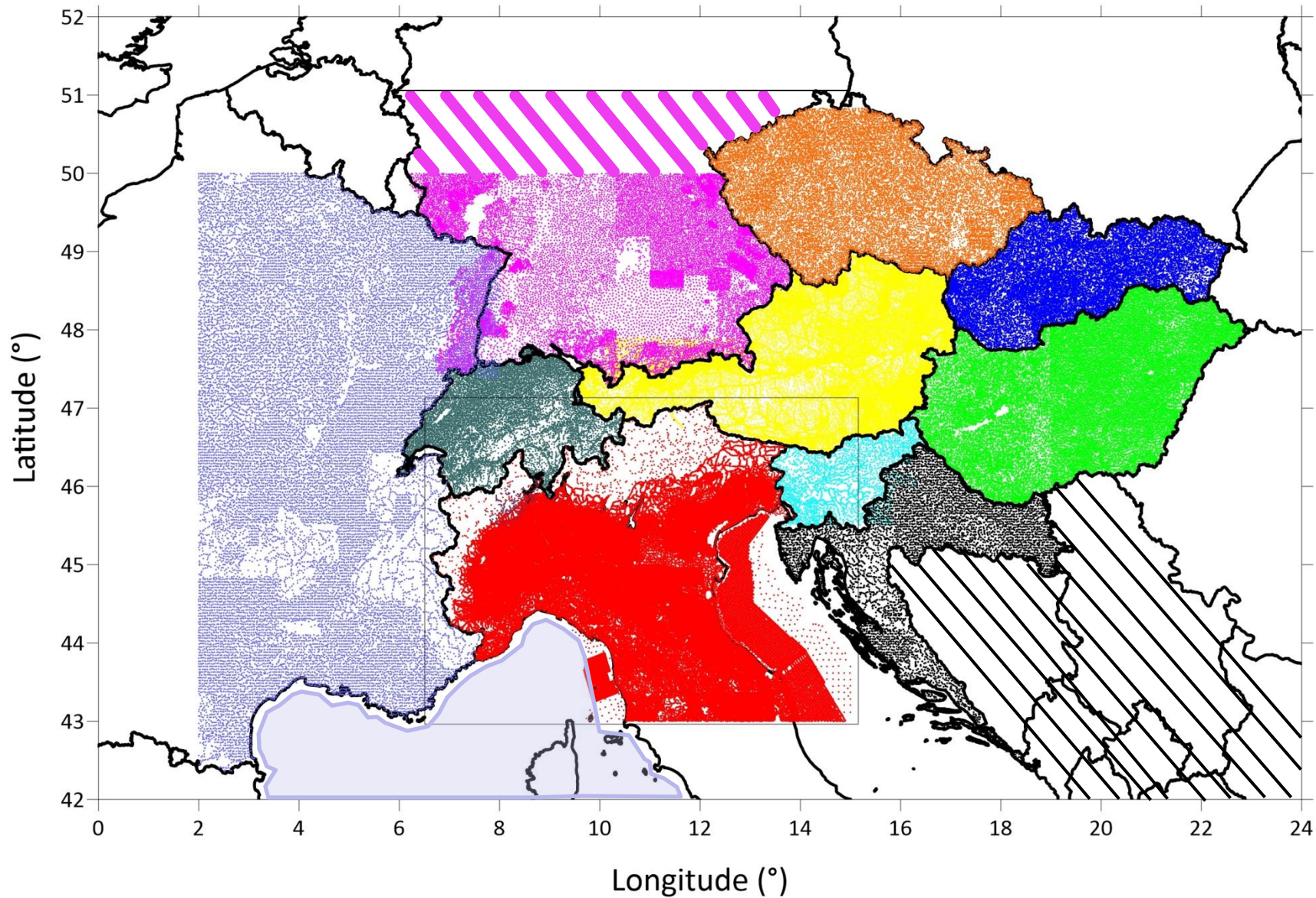   Homogenization of data point positions. Local vs. global systems.

➢ *Heights*

    Local-national height systems vs. European systems;
    Ellipsoidal vs. geoidal heights

➢ *National DEM* (Digital Elevation Models)
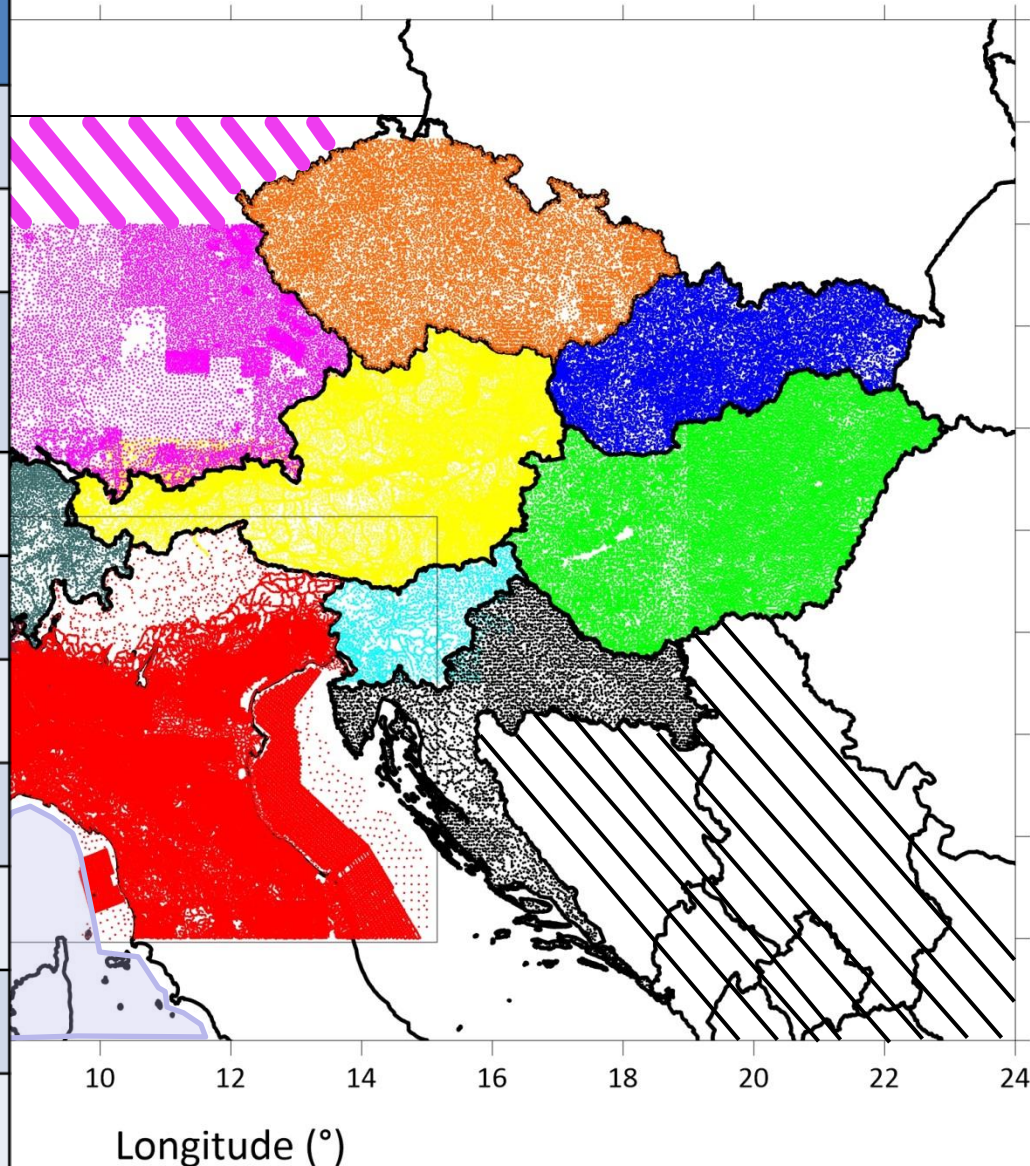
    National vs. global DEMs

Problem: Data status – gravity

Problem: Data status – gravity

|	Nr. points
Austria	55 528
Croatia	4 939
Czech Republic	13 956
France	58 750 + offshore
Germany	36 000
Hungary	25 435
Italy	109 385
Slovakia	21 109
Slovenia	416 & 2 650
Swiss	7 963

Longitude (°)

Products: Final compilations (May 2020)

- 2 km x 2 km and 4 x 4 km Grid (open access)
- Final publication in progress;
- DOI for the registration of research data sets;
- 1 km x 1 km für AlpArray members (according to agreement of the ten participating countries);
- Digital grid format (ellipsoidal coordinates & heights);
- No distant topo/bath. effects, 2D kriging interpolation (3D later)
- Densities: 2 670 – 1 030 – 1 640 kg/m^3

- ❑ Bouguer- , Free Air isostatic resigual Anomaly
- ❑ Mass corrections (for recalculation by other correction densities)
- ❑ Uncertainty/errors
- ❑ PDF Map of CBA (high resolution and nice…)

190   140   90   40   10   60

CBA (mGal)

Bouguer anomaly, CBA (April 2020)
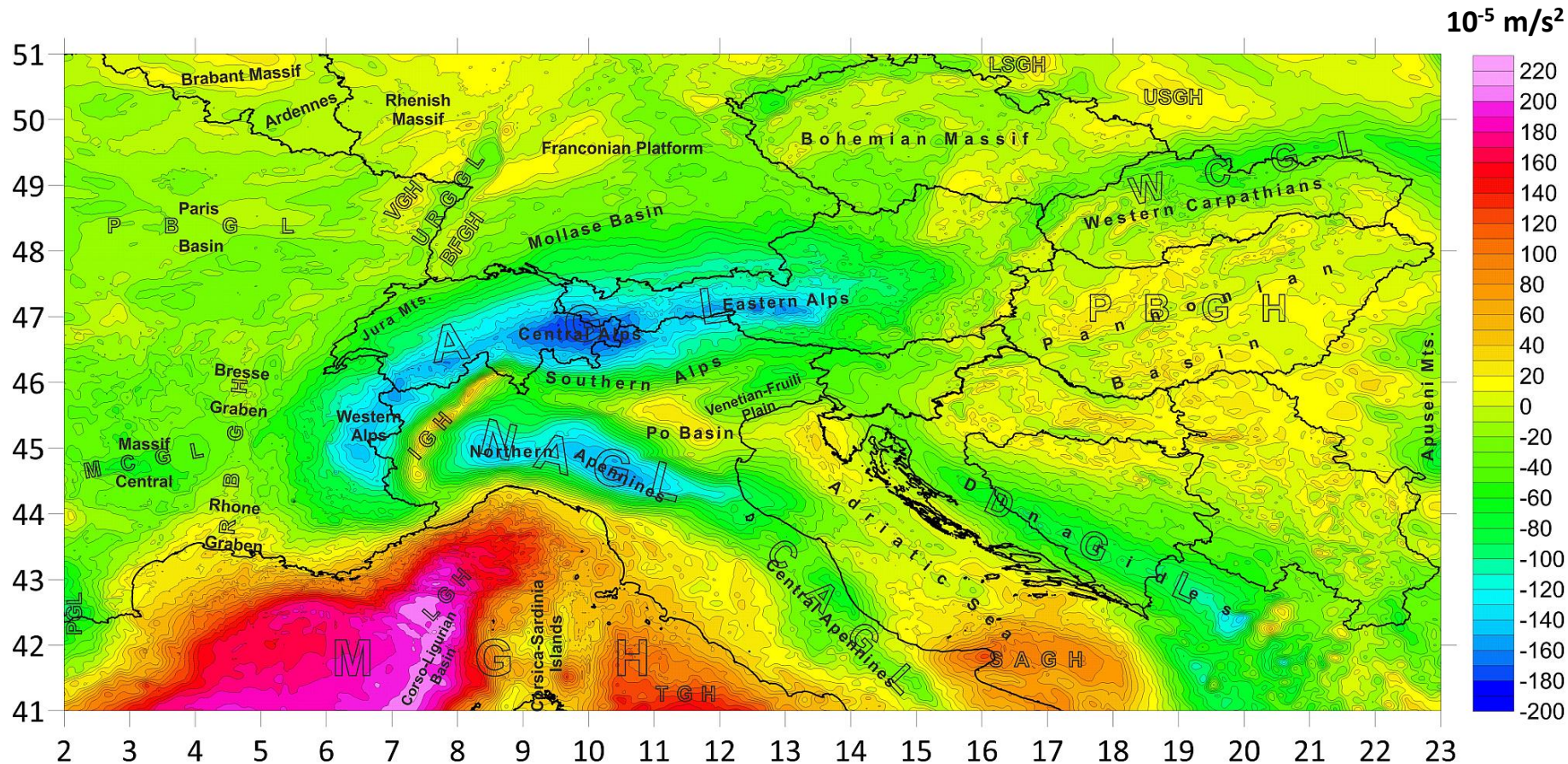
Draft: map not yet finally adopted!

Please, also check the presentation of the AAGRG by *Pavol Zahorec et al.:*
Processing steps for the compilation of AAGRG gravity maps
This session: TS7, abstract: D1315

WHO IS WHO: Country list of AAGRG participants:

A – CH – CZ - D – F – H – HR - I - SK – SLO

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International context:
➢   AlpArray initiative   (http://www.alparray.ethz.ch),
➢   SPP 2017 „Mountain Building Processes in four Dimensions, MB-4D" (Germany)
                                                  (http://www.spp-mountainbuilding.de)

Meetings/workshops:
  April 25, 2017, Splinter meeting at EGU
  March 08/09, 2018, Workshop, Bratislava
  August 29-30, 2018, 1st AlpArray Meeting, in Zürich
  October 15/16, 2018, Technical meeting, Bratislava
  April 09, 2019, Splinter meeting at EGU
  October 15/16, 2019, Workshop, Sopron
  November. 08/09, 2019, Joint meeting, SPP "4D-MB" and AlpArray, Frankfurt

Let´s meet in the chat at EGU 2020 in Vienna ...

Drop in…

Processing steps for the compilation of AAGRG gravity maps
Pavol Zahorec and the AAGRG

Session: TS7,   abstract: D1315

Chat: Thu, 07 May, 10:45–12:30, Chat: Thu, 07 May, 14:00–15:45