



**Start on
the new edition of the
International Quaternary Map of Europe
1: 2 500 000
-GIS, Map and Web Mapping Application –**

Kristine Asch

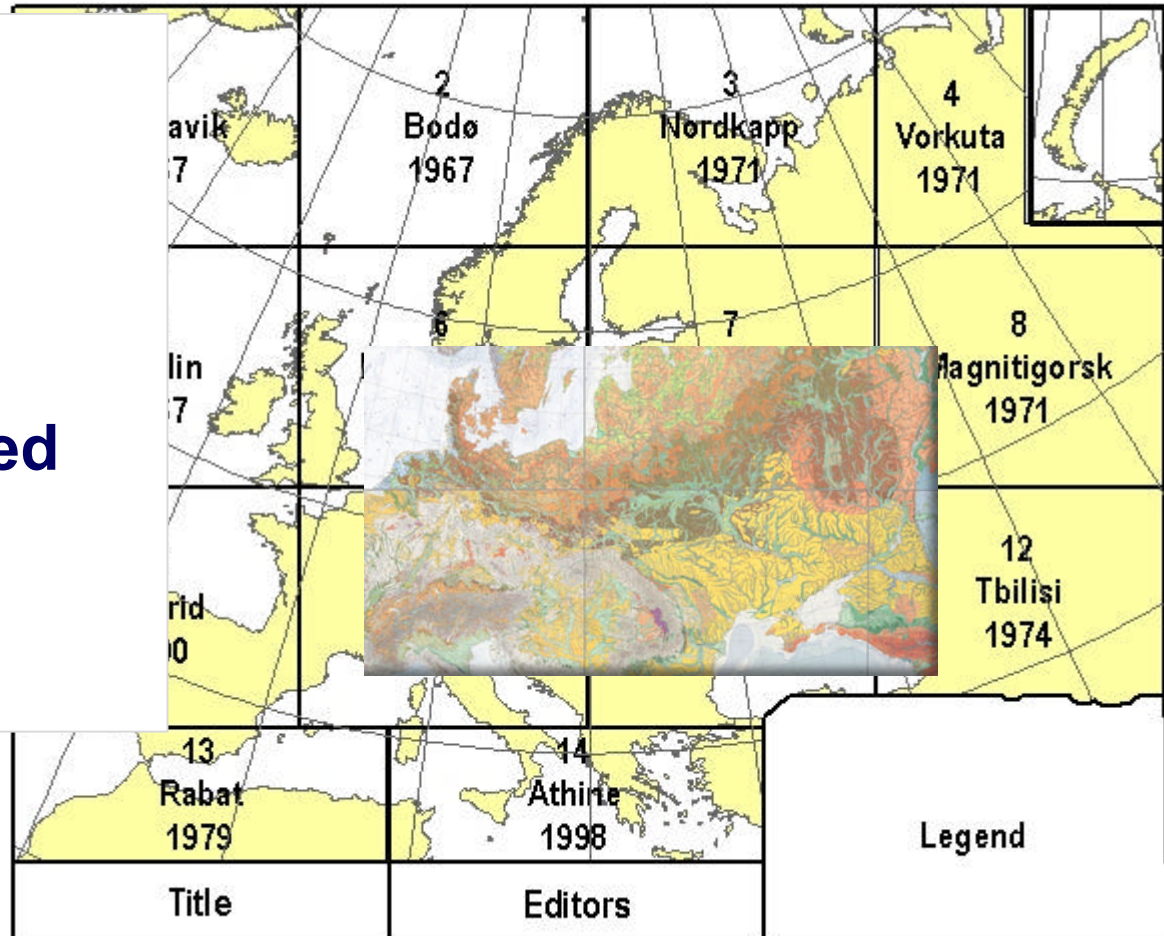




International Quaternary Map of Europe scale 1: 2 500 000



- 14 sheets
- paper map
- 1961 - 1995
- International cooperation
- ed.: BGR, supported by UNESCO and INQUA





Background



- 1932 Leningrad/St. Petersburg: 2. INQUA Congress. Foundation of the „Commission of the International Quaternary Map of Europe“
- 1961 Warsaw: 6. INQUA Congress: Start of the actual map compilation of the 2,5 Int. Quat. Map of Europe
- Editor: BGR, co-editor UNESCO, Topographic base map taken from the International Tectonic Map of Europe (Moscow, 1962)
- 1967 – 1989 Publication of the map sheets
- 1995 Completion of the legend sheet

Title	Editors
1 Reykjavik 1967	
2 Oslo 1967	
3 Nordkapp 1971	
4 Vorkuta 1971	
5 Dublin 1967	
6 København 1970	
7 Moskva 1971	
8 Magnitogorsk 1971	
9 Madrid 1990	
10 Bern 1989	
11 Bucarest 1975	
12 Tbilisi 1974	
13 Rabat 1979	
14 Athina 1980	



International contributors and team of the 1. edition from all over Europe



The 14 mapsheets of the International Quaternary Map of Europe were prepared by: a) national contributors, b) compilation at BGR, Hannover

- | | | | | | | | |
|-----------------------|--|-------------------------------------|--|-----------------|---|--------------|---|
| 1. Grønland | a) S. Hansen, A. Weidick | 12. Bundesrepublik Deutschland | a) K. Duphorn, H.-O. Grahle, K. Picard, A. Voges | 22. Italia | a) F. Carraro, V. G. Orombelli | 28. Tunis | a) H. Alimen, G. Castany, G. Choubert, A. Faure-Muret |
| 2. Island | a) G. Kjartansson | | | Manganelli, | | | |
| 3. Norge | b) K. Duphorn | 13. Deutsche Demokratische Republik | a) A. G. Cepek | 23. Jugoslavija | b) A. Voges | | b) A. Voges |
| | a) B. G. Andersen, P. Holmsen, M. Marthinussen | | b) K. Duphorn, H.-O. Grahle | | | 29. Shqipëri | a) S. Dodona |
| 4. Sverige | b) K. Duphorn | 14. Polska | a) E. Rühle | 24. România | a) C. Ghenea | | b) A. Voges |
| | a) G. Lundqvist, J. Lundqvist, L. Vilborg | 15. France | a) E. Basse de Ménorval, N. Theobald | 25. Bålgarija | b) A. Voges | 30. Ellás | b) A. Voges |
| | b) K. Duphorn, H.-O. Grahle | | b) A. Voges | 26. Al Maghrib | a) H. Alimen, G. Castany, G. Choubert, A. Faure-Muret | 31. Türkiye | b) A. Voges |
| 5. Suomi | a) H. Ignatius, E. Hukkonen, K. Virkkala | 16. Schweiz / Suisse / Svizzera | a) R. Hantke | | b) A. Voges | 32. Irån | b) A. Voges |
| 6. Eire | a) F. M. Synge | 17. Österreich | b) A. Voges | 27. Al Jazà'ir | a) H. Alimen, G. Castany, G. Choubert, A. Faure-Muret | | |
| 7. United Kingdom | b) K. Duphorn | | a) J. Fink, H. Kohl | | b) A. Voges | | |
| | a) K. M. Clayton, J. B. Sissons | 18. Československo | b) A. Voges | | | | |
| 8. Danmark | b) K. Duphorn, H.-O. Grahle | 19. Magyarország | a) K. Žebera, J. Tyráček | | | | |
| 9. Nederland | a) S. Hansen | 20. Portugal | a) A. Rónai | | | | |
| 10. Belgique/België | a) S. v. d. Heide, O. S. Kuyle | 21. España | a) G. Zbyszewski | | | | |
| 11. Luxembourg | a) R. Maréchal, R. Paepé | | a) J. L. Goy Goy, D. Serrat, C. Zazo Careña | | | | |
| | b) A. Voges | | b) A. Voges | | | | |
| 33. SSSR/CCCP | | | | | | | |
| a) G. F. A. Al'vadin | G. S. V. Epštejn | | K. K. Orviku | | | | |
| G. K. S. Andrianov | G. M. D. Gavrilov | | V. S. Perl'stejn | | | | |
| G. N. V. Anfiltova | G. G. I. Goreckij | | A. A. Romanov | | | | |
| G. N. I. Apuchtin | G. M. N. Griščenko | | I. N. Safronov | | | | |
| G. L. B. Aristarchova | G. N. S. Ibragimov | | V. N. Saks | | | | |
| G. A. T. Aslan'an | G. N. N. Jachimovič | | S. M. Šik | | | | |
| G. S. P. Bal'an | G. K. F. Kajak | | V. K. Škatova | | | | |
| G. G. B. Berdyjev | G. F. A. Kapl'anskaja | | M. A. Spiridonov | | | | |
| G. N. I. Bondarenko | G. N. A. Kogai | | V. D. Tarnogradskij | | | | |
| G. S. L. Breslav | G. I. I. Krasnov | | R. I. Torozov | | | | |
| G. V. A. Budagov | G. V. M. Kuršs | | V. Vajtonis | | | | |
| G. M. M. Capenko | G. V. A. Lider | | A. Vala | | | | |
| G. D. V. Cereteli | A. N. Maklakova | | M. F. Veklič | | | | |
| G. T. T. Cymbal | D. B. Malachovskij | | N. P. Verbinckaja | | | | |
| G. I. Ja. Danilans | G. V. Matvejeva | | Ju. F. Zacharov | | | | |
| G. A. R. Davt'an | Je. I. Matvijenko | | L. N. Zagrob'an | | | | |
| G. N. V. Dumitraško | S. V. Mechtijev | | V. S. Zarchidze | | | | |
| | A. A. Naumov | | Je. P. Zarrina | | | | |

Scientific editors of individual sheets

- K. Duphorn, Hannover
(1, 2, 3, 4, 5, 6, 7, 8, 11, 12)
- H.-O. Grahle, Hannover
(1, 2, 5, 6)
- I. I. Krasnov, Leningrad
(3, 4, 7, 8, 11, 12)
- H. Schneider, Hannover
(1, 2, 5, 6)
- A. Voges, Hannover
(3, 4, 7, 8, 9, 10, 11, 12, 13, 14, legend sheet)

7th EUREGEO
European
Congress

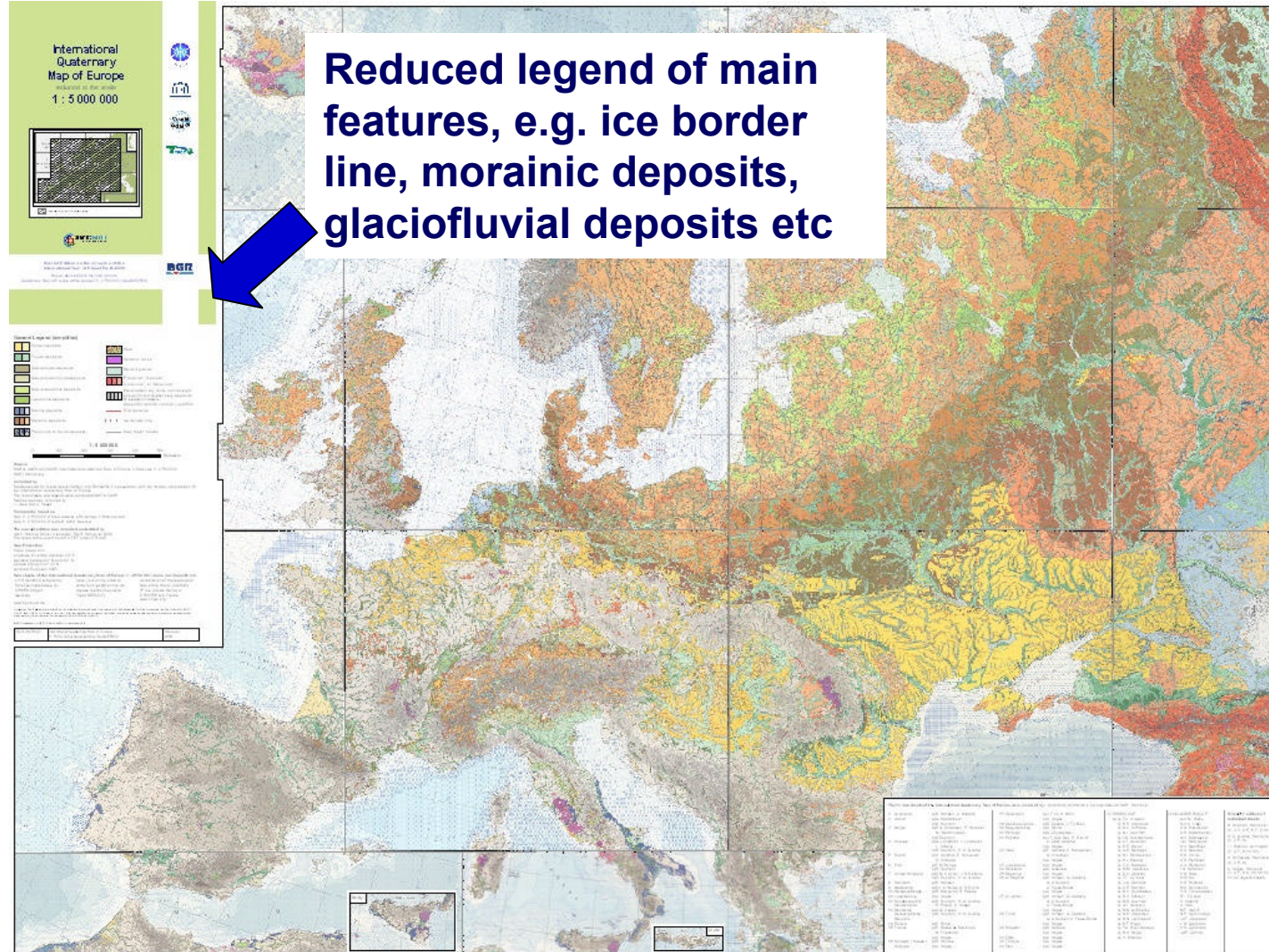


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IGC 2008, Oslo: Reprint International Quaternary Map of Europe 1 : 5 Million reduced to the scale 1: 5 M



Reduced legend of main features, e.g. ice border line, morainic deposits, glaciofluvial deposits etc

Support of review by CGMW and INQUA

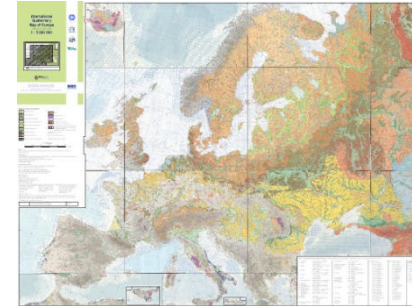
authors and editors



Why a reviewed, new edition?



- 1961 - 1989 excellent paper edition
- But a GIS/geodatabases allow retrievals, link with other data, web accessibility
- Science and mapping needs up-date
- Map classification needs up-date: Diluvium? Colluvium?
- Harmonisation across sheet boundaries and systems(!)
- User need: uppermost layer of geology – lithology for flooding mitigation, groundwater exploration, sand and gravel exploration, planning of buildings and infrastructure, '.....





The new IQUAME edition: Roadmap



- July 2011: XIII INQUA in Bern: Kick-off
- September 2011: MAEGS 17, Serbia
„Quaternary in the Dinarides“ Workshop
- 2012, Vienna: 2nd IQUAME workshop
- 2012 IGS Brisbane: presentation at Gibbard Session (Int. Quaternary Commission)
- 2013 3rd IQUAME Workshop (Wien? Paris?)
- 2014 4th IQUAME Workshop
- 2015 XIX INQUA Congress
- 2016 IGC (South Africa)



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IQUAME participants and core group



name	organisation	country
Jürgen Reitner	<i>Geologische Bundesanstalt</i>	Austria
Jürgen Ehlers	<i>Geol. Survey Hamburg</i>	Germany
Kristine Asch	<i>BGR, coordinator</i>	Germany
Dirk Vanhusen	<i>Tech, University Vienna</i>	Austria
Ángel Salazar,	<i>IGME</i>	Spain
Daniel Nyvlt	<i>Czech Geogical Survey</i>	Czech Rep.
Lescek Marks	<i>Polish Geological Institute</i>	Poland
Volli Kalm	<i>University of Tartu, Estonia</i>	Estonia
Elena Ghezzeo	<i>University of Ferrara, Italy</i>	Italy
David Barell	<i>GNS Geoscience</i>	NZL
Andrei Zastrozhnov,	<i>VSEGEI</i>	Russia
Jonathan Lee	<i>British Geological Survey</i>	UK
Reto Burkhalter	<i>Swiss Geological Survey,</i>	Switzerland
Rimante Guobyte	<i>Lithuanian Geological Survey</i>	Lithuania
Milos Bavec	<i>Geologi. Survey of Slovenia</i>	Slovenia
Tivadar Gaudenyi	<i>Geographic Institute Belgrade</i>	Serbia
Christian Schlüchter	<i>Institut Geologie, Uni Bern</i>	Switzerland
Valery Ostakhov	<i>St. Petersburg University</i>	Russia
Ernst Kroemer	<i>Geol Survey Bavaria</i>	Germany (BY)
Valentina Shostakovitch	<i>VSEGEI</i>	Russia

ür
aften



Building on the genetic elements used for the first IQUAME



- glacial deposits,
- glacial deposits
- Glaciolacustrine deposits
- lacustrine deposits,
- glaciofluvial-fluvial deposits
- loess and loess-like deposits
- eolian depositions (sand and dunes)
- Eluvium, Colluvium, Deluvium,
- peat and lignite,
- marine deposits

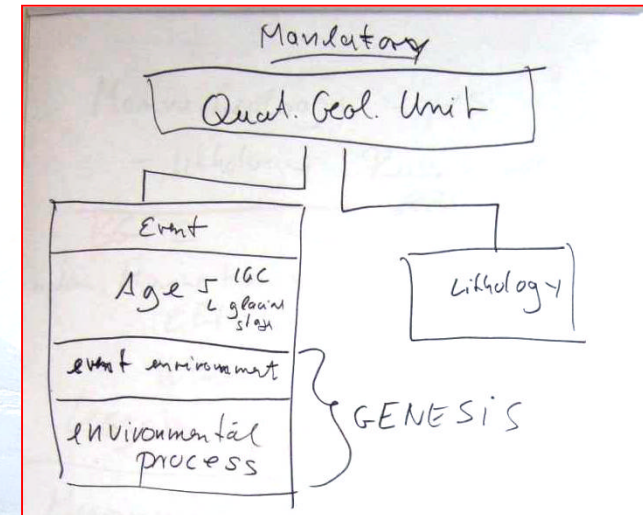
Genesis

Glacial deposits
G.g
E.g
Ok.g
Mi.g
S.g
R.g
D.g
Dn.g
Wa.g
Mo.g
W.g
WK.g
WO.g
.G
Glaciofluvial deposit
p1.gf
G.gf
G-Mi.gf
E.gf
Ok.gf
Ok-Dn.gf
S.gf
S-W.gf
D.gf
Dn.gf
Wa.gf
Mo.gf
W.gf
WK.gf
WO.gf



Planned core contents of the „renovated“ IQUAME

- **age** (ICS Chart Cohen & Gibbard 2011, INSPIRE)
- **lithology** (CGI/GeociML vocabulary, INSPIRE)
- **genesis** : environmental process
and event environment from the CGI/GeoSciML
vocabulary, INSPIRE
- **glacial maxima** (Ehlers/Gibbard)
- **Correlation of glacial events
accross Europe stratigraphy**
Riss – Saale – Moscow - Dnepr
- **Geomorphology**, if available
(INSPIRE Term: voidable)





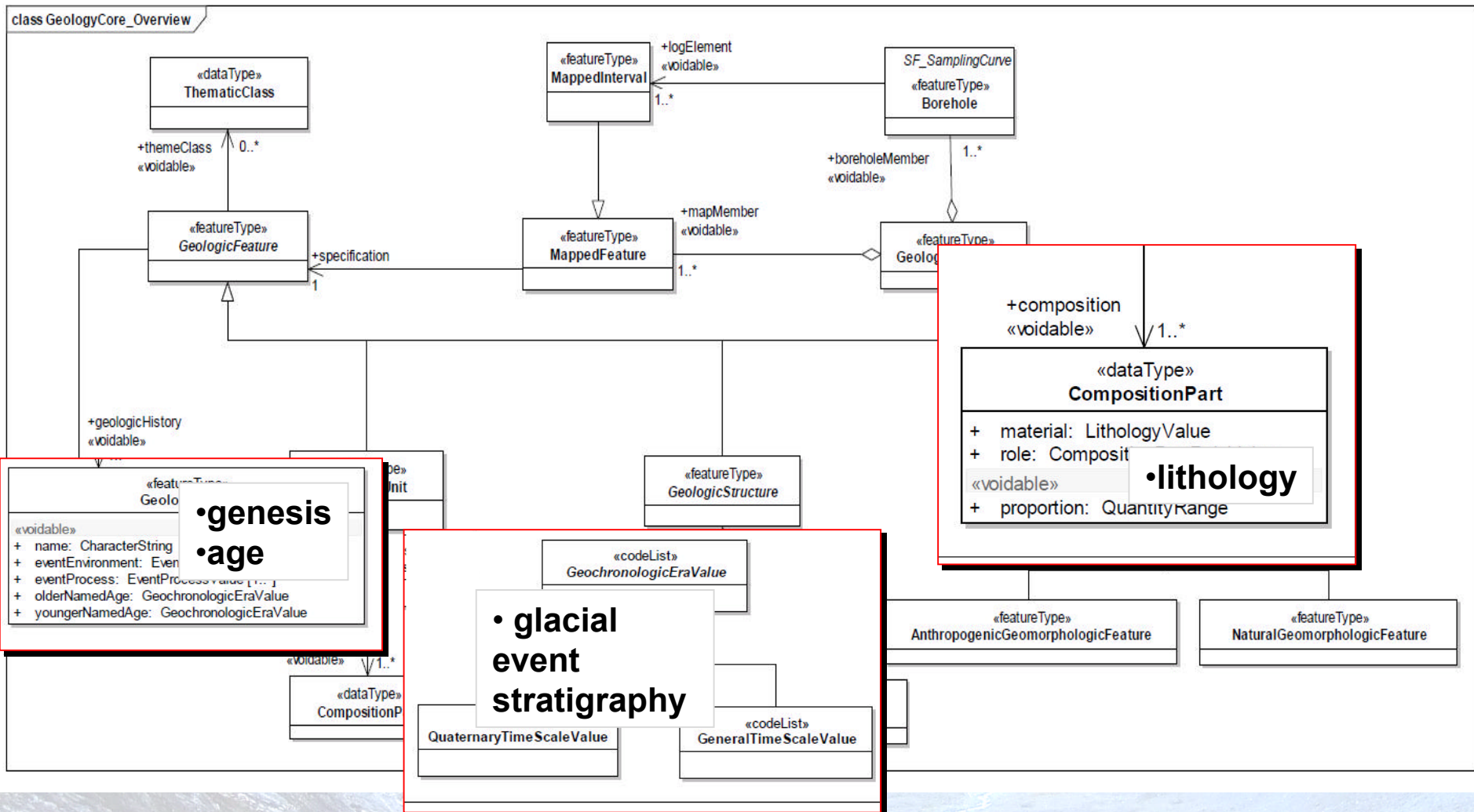
Additional modern contents of the IQUAME GIS ...



- **Loess distribution (Haas et al)**
- **Karst properties**
- **Thickness of the Quaternary sediments**
- ?Measurements of displacement (GPS)
- ?Absolute datation of type localities
- ?Glacial overdeepening (Messinian Canyons)
- Marine Quaternary geology (in discussion with European FP7 EMODNET project)
- Marine transgression boundaries
- ...



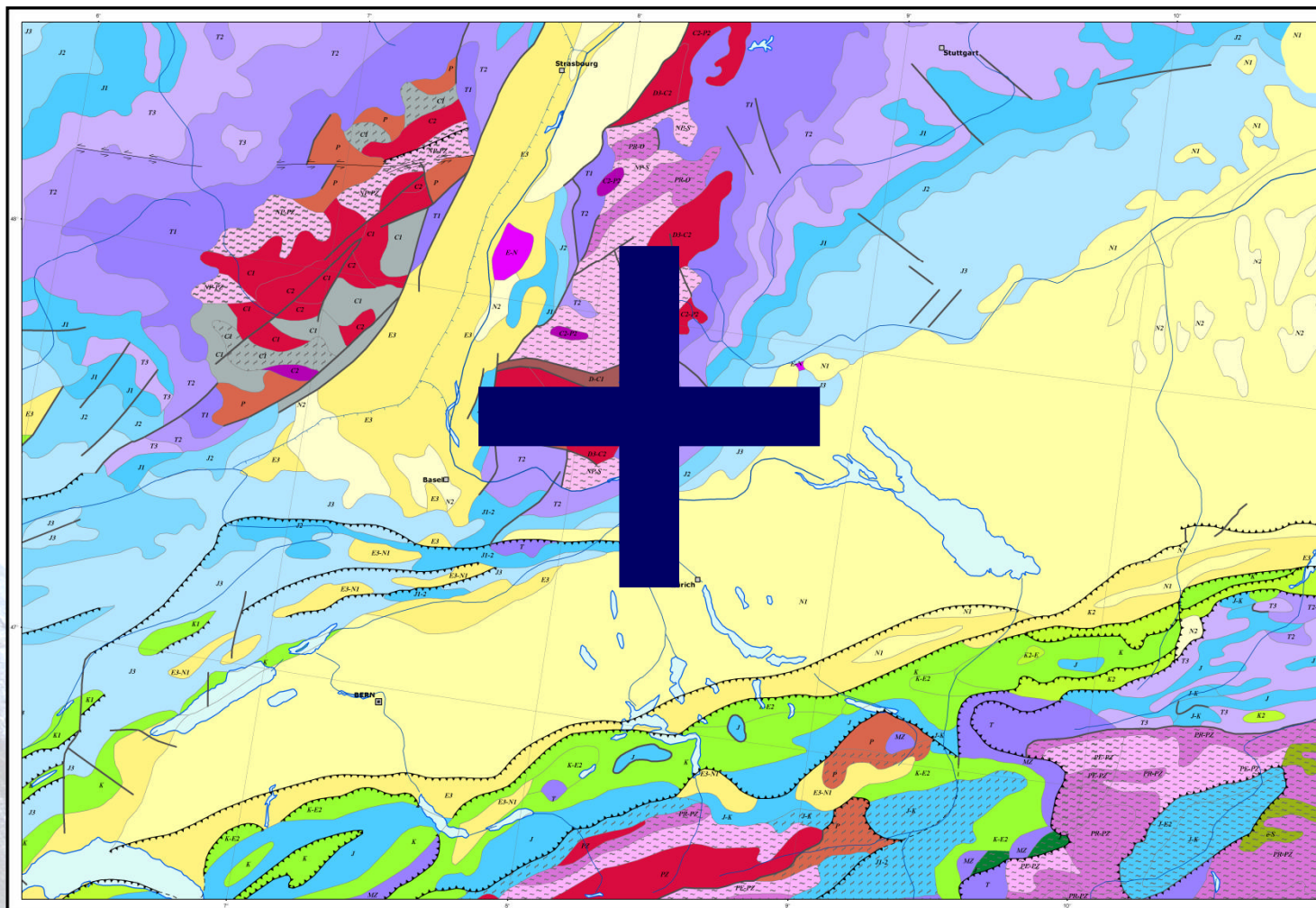
INSPIRE „orientation“





Vision for the INQUA 2015 ...

Pre-Quaternary from the IGME 5000



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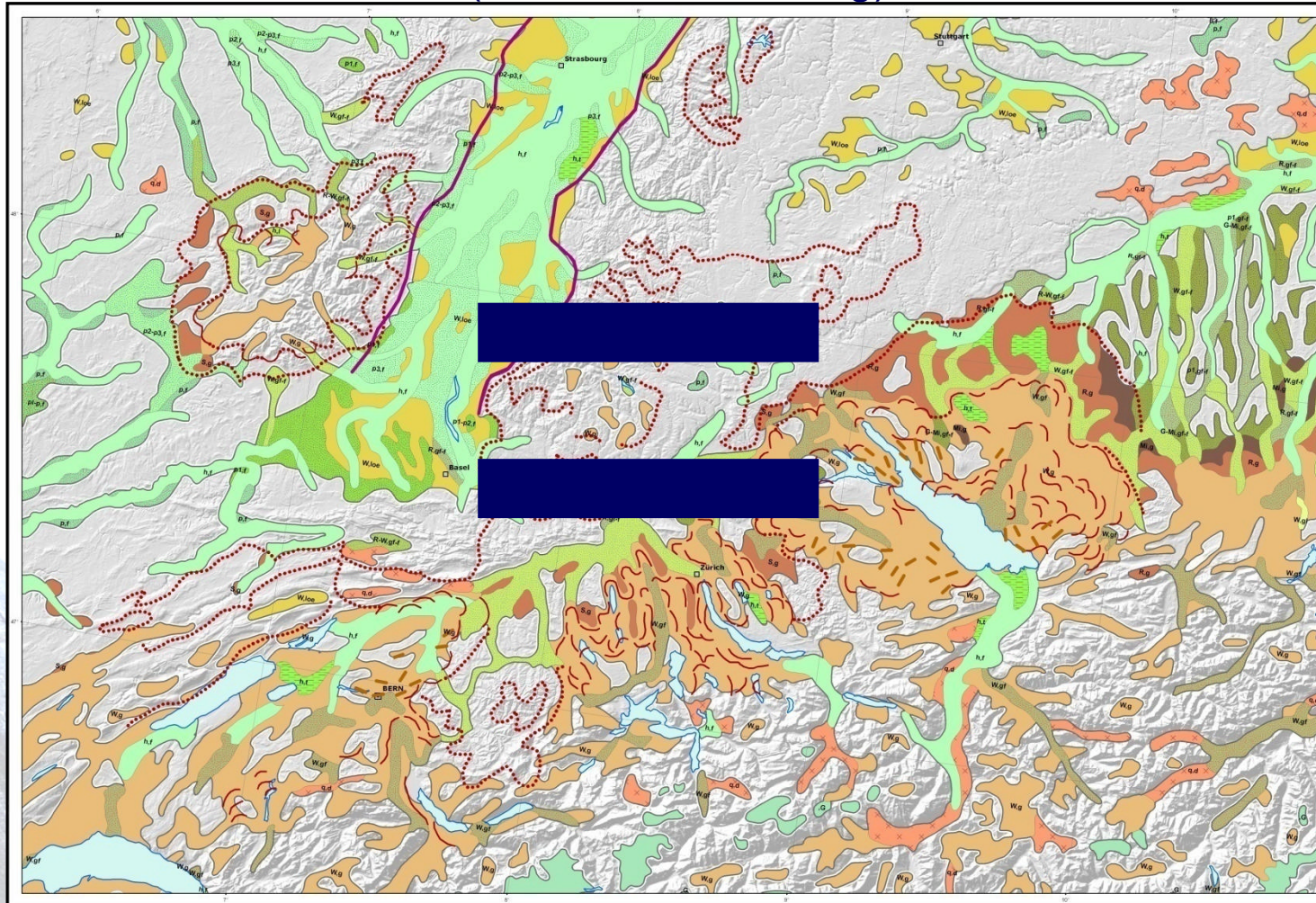
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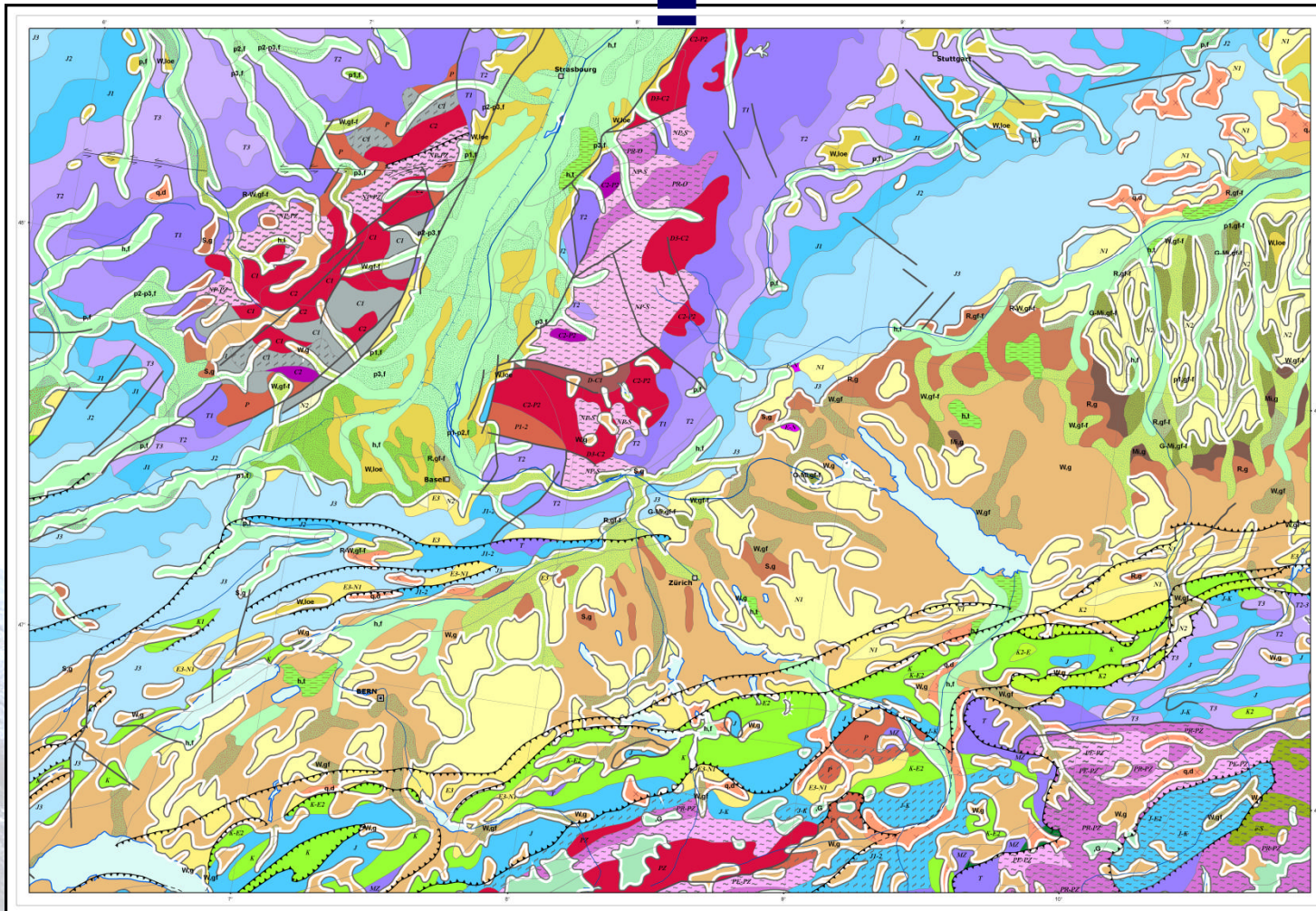
Quaternary geology (IQUAME new)

(here with hillshading)





Quaternary (IQUAME) + Pre-Quaternary (IGME 5000) geology



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For more information:

Kristine.Asch@bgr.de

