

Klima-Exzellenz in Hamburg



Zentrum für Marine und
Atmosphärische Wissenschaften



Max-Planck-Institut
für Meteorologie



GKSS Forschungszentrum
Geesthacht



Deutsches Klimarechenzentrum

Polar ice sheets and sea level - past, present and future

Roland Warner

Australian Antarctic Division & Antarctic Climate and Ecosystems CRC

Mittwoch 13.30h ZMAW, 22/23

Datenanalyse und Datenvisualisierung

17.05.2010

Angelika Humbert

Universität Hamburg

1. Datenanalyse

2. Datenvisualisierung

Einführung

- **Datenanalyse** Preprocessing, processing, Endprodukt
- **Datenvisualisierung** Darstellung der Daten parallel zur Datenanalyse, Darstellung der Daten zum Zweck der Präsentation in wissenschaftlichen Veröffentlichungen, Vorträgen und als Diskussionsgrundlage

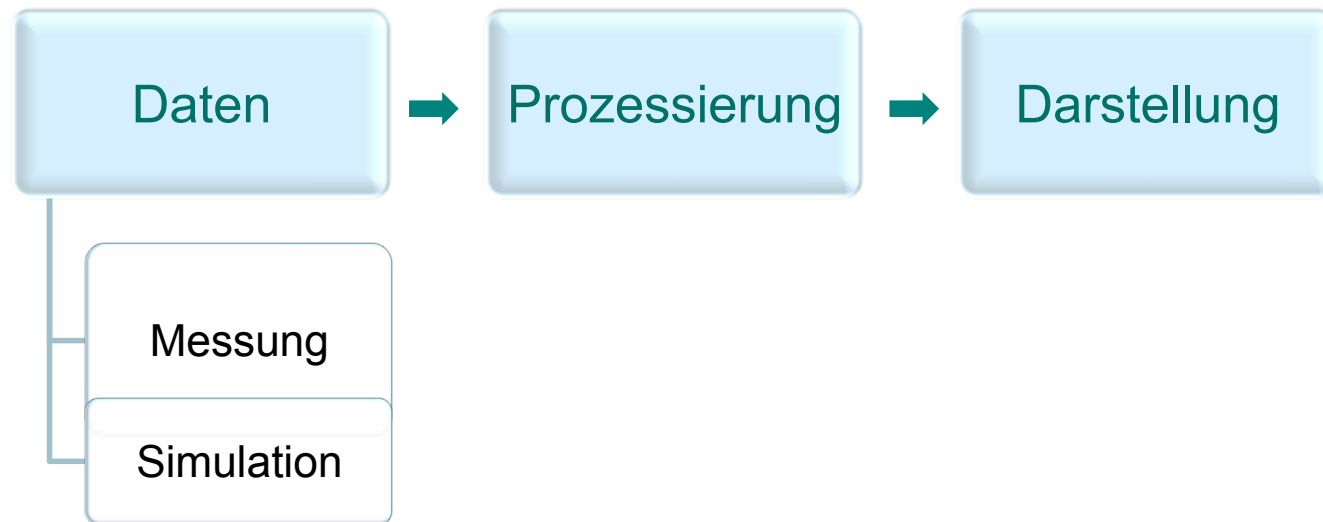
Ziele

- **Aufdecken von Systematiken** mittels Techniken der statistischen Datenanalyse
- **Erforschen zugrunde liegender Prozesse** Abhängigkeiten einzelner Variablen, zeitliche Variabilität
- **Handhaben großer Datenmengen** z.B. Sensivitätstests in Modellen, Satellitendaten, Zeitreihen
- **Klassifikation von Daten** z.B. Oberflächeneigenschaften
- **Erstellen eines Datenprodukts** z.B. Datensatz der globalen Verteilung der Meeresspiegeländerung im letzten Jahr

Datenanalyse

- **Pre-processing - Bearbeiten von Rohdaten** Selektion, Anbringen von Korrekturen, Transformation der Observablen in die gesuchte Größe (z.B. Laufzeit in Höhe), Fehlerbestimmung
- **Processing** Filtern, Normierung, Tests der Abhängigkeiten einzelner Variablen, zeitliche Variabilität
- **„Analyse“ im eigentlichen Sinn** Verstehen der Ergebnisse des Prozessierens

Datenanalyse



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CERN Program Library Long Writeup D506

MINUIT

Function Minimization and Error Analysis

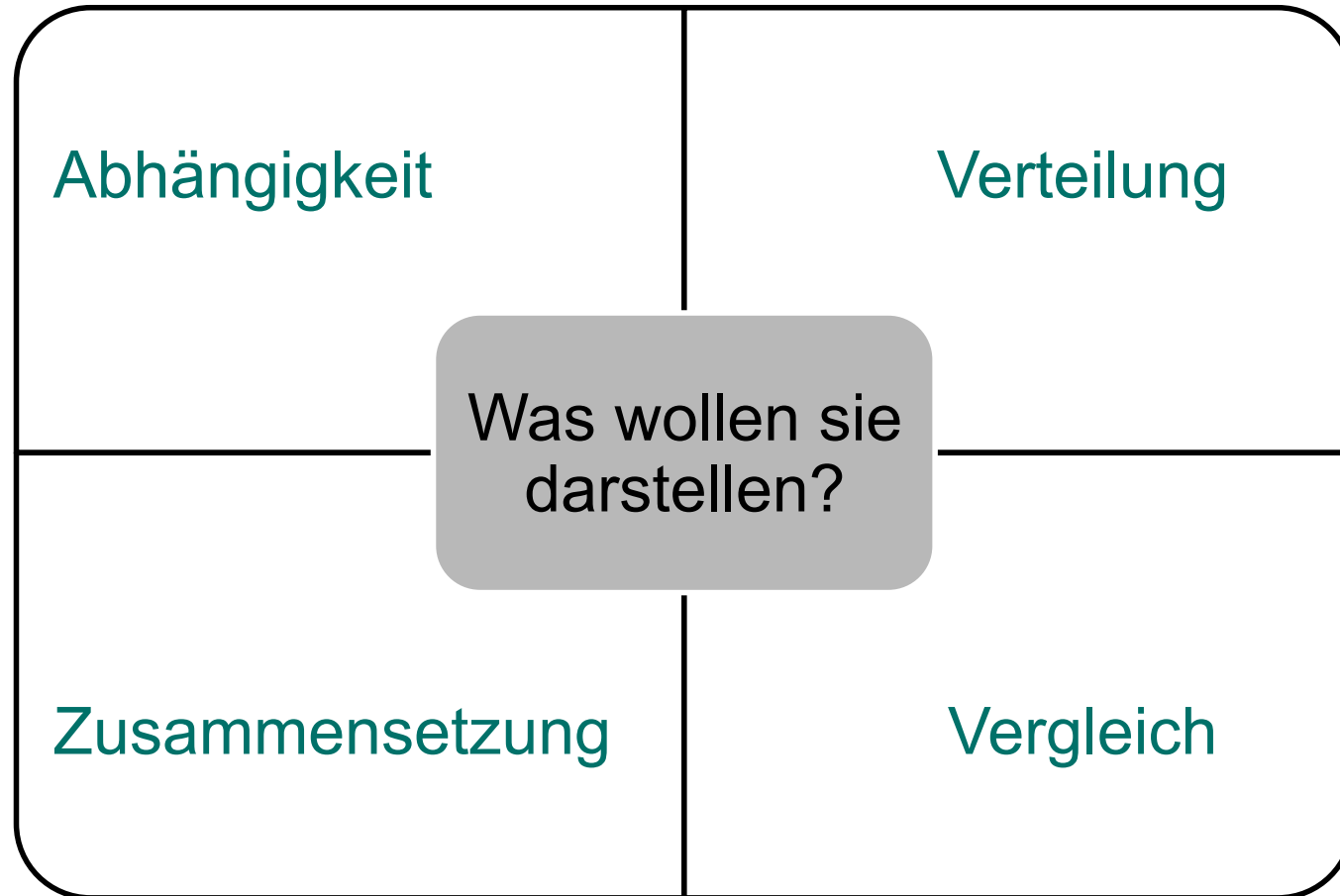
Reference Manual

Version 94.1

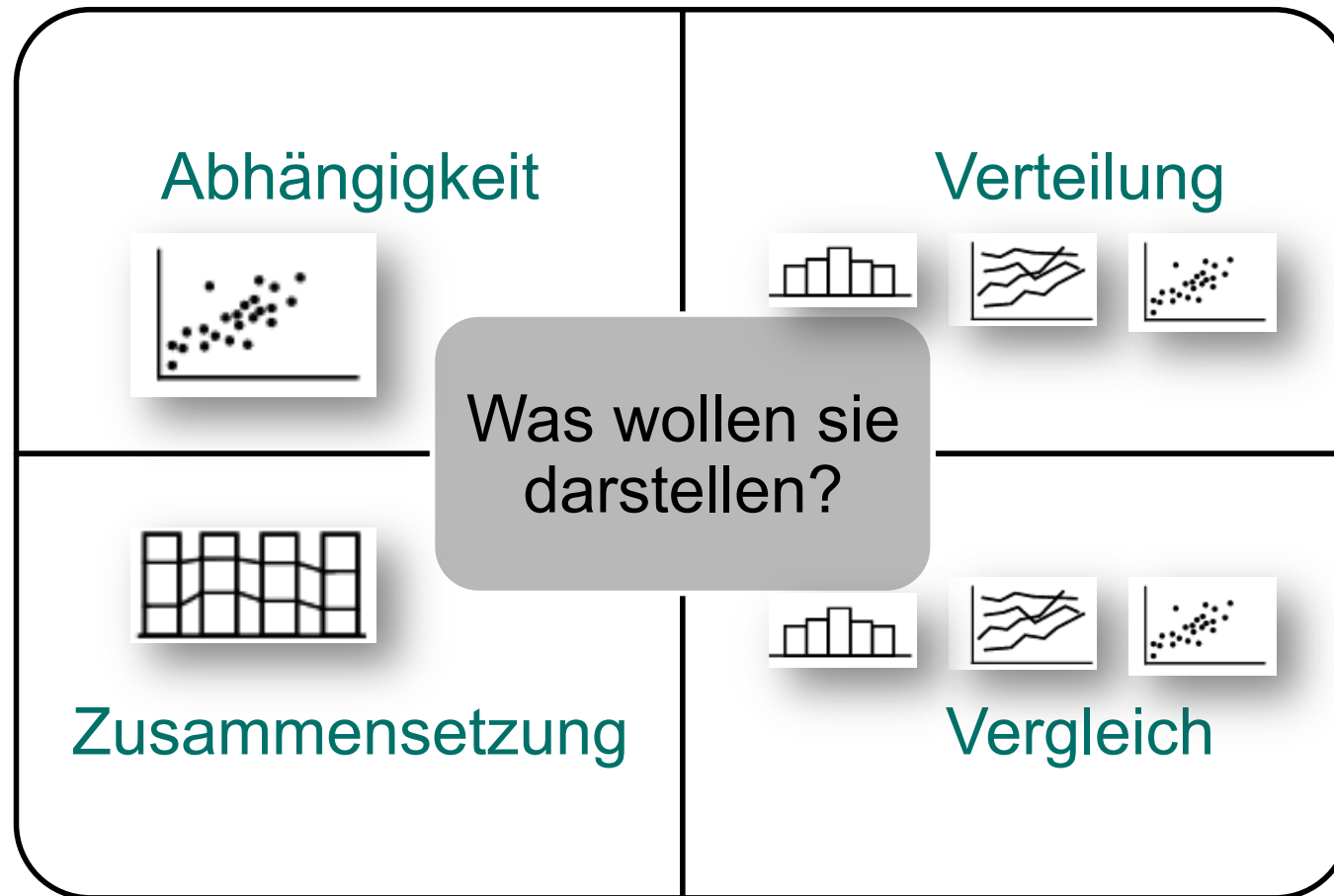
F. James

Computing and Networks Division

CERN Geneva, Switzerland



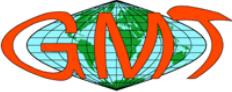
Datenvisualisierung



Datenvisualisierung – Generic Mapping Tool

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http://gmt.soest.hawaii.edu/ generic mapping tools


THE GENERIC MAPPING TOOLS



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GMT Pages maintained by:
Paul Wessel

Last updated:
Jan. 15, 2010

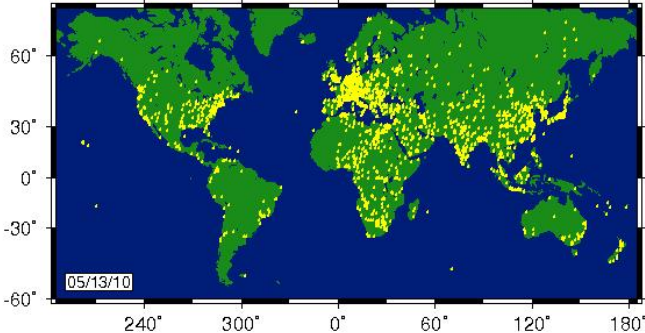


Visit SOEST home page


What is GMT?

GMT is an open source collection of ~60 tools for manipulating geographic and Cartesian data sets (including filtering, trend fitting, gridding, projecting, etc.) and producing Encapsulated PostScript File (EPS) illustrations ranging from simple x-y plots via contour maps to artificially illuminated surfaces and 3-D perspective views. GMT supports ~30 map projections and transformations and comes with support data such as GSHHS coastlines, rivers, and political boundaries. GMT is developed and maintained by [Paul Wessel](#) and [Walter H. F. Smith](#) with help from [a global set of volunteers](#), and is supported by the [National Science Foundation](#). It is released under the [GNU General Public License](#).

Current version is 4.5.2, Released January 15, 2010.



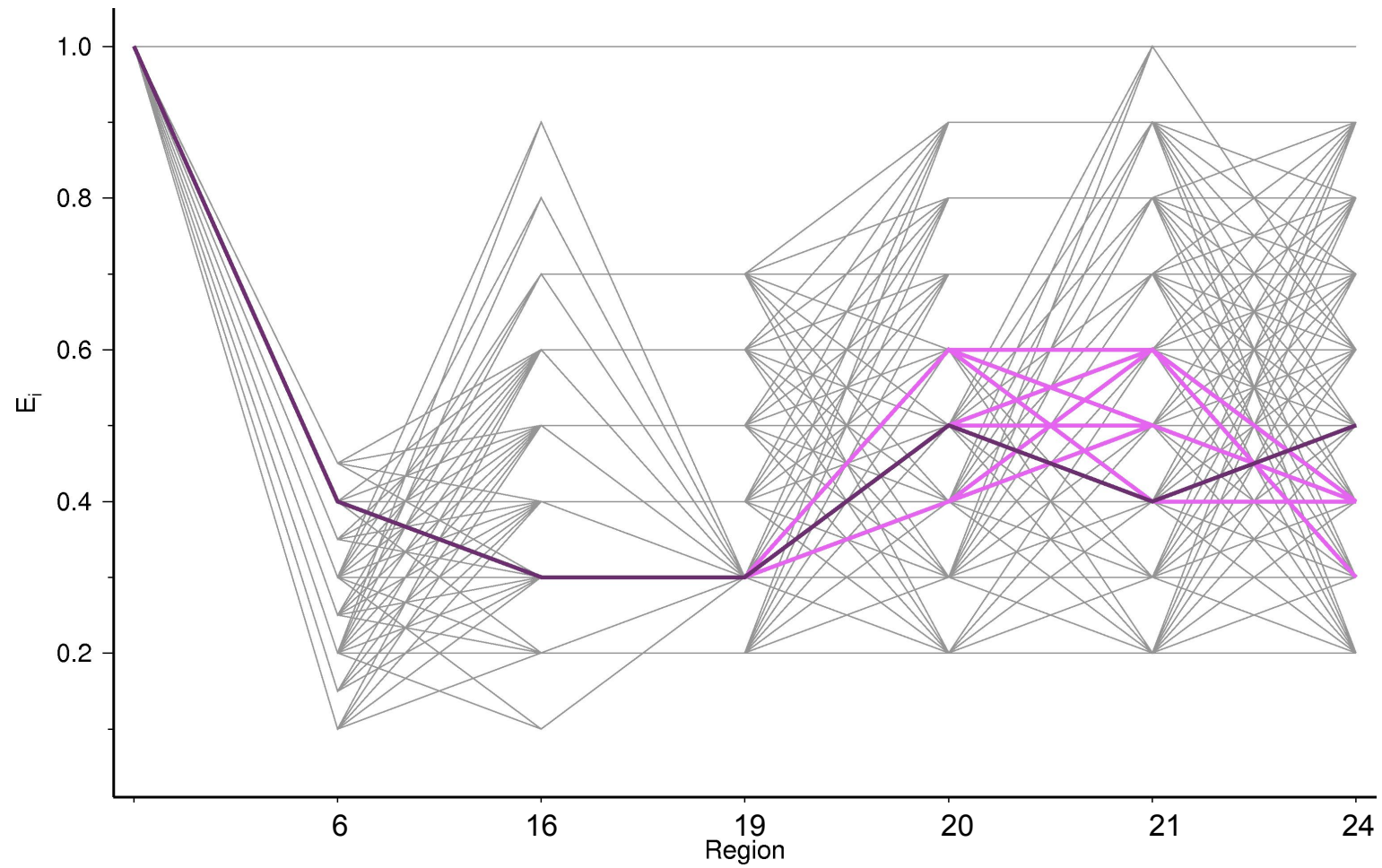
GMT is used all over the world. Each yellow dot represent a 15x15 arc minute block with one or more registered user or institution. So far, almost 2000 such blocks have been registered, representing more than 15,000 individual GMT users. To add your dot, fill out the [registration form](#).



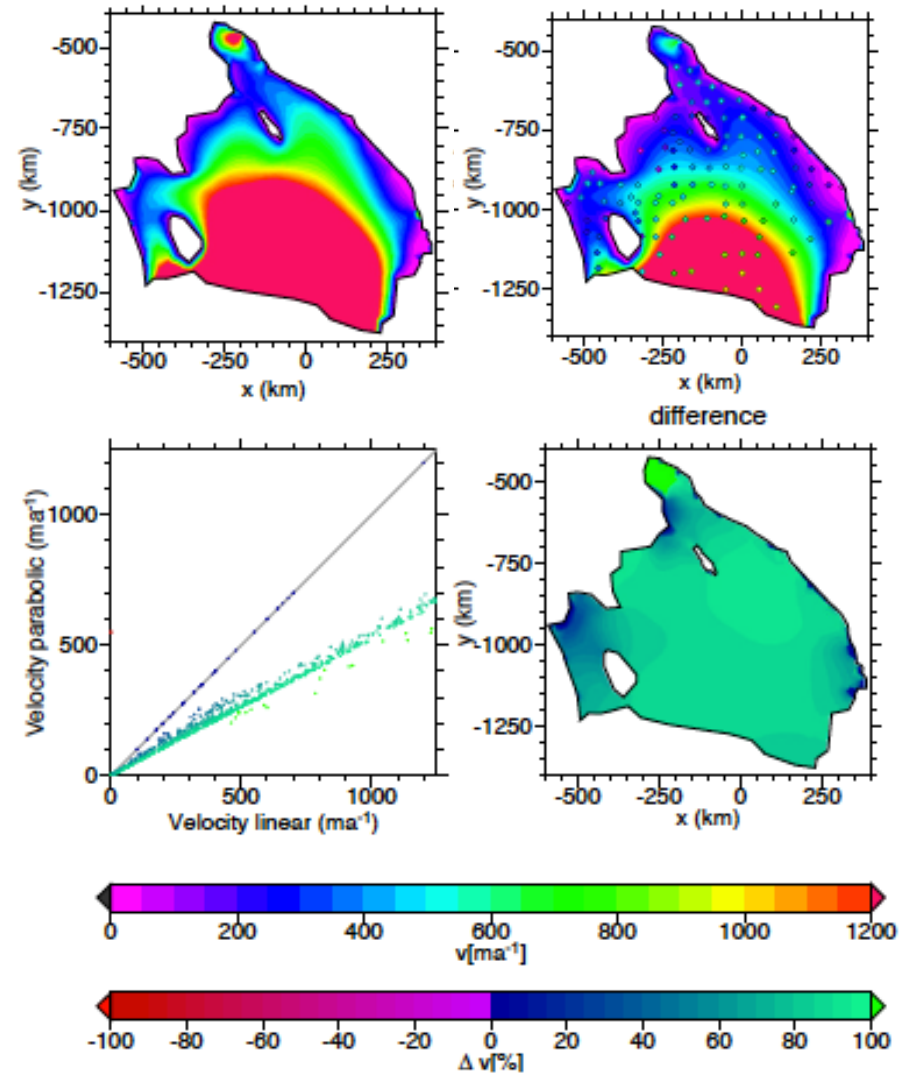
SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY
UNIVERSITY OF HAWAII AT MĀNOA

Datenvisualisierung – Beispiele

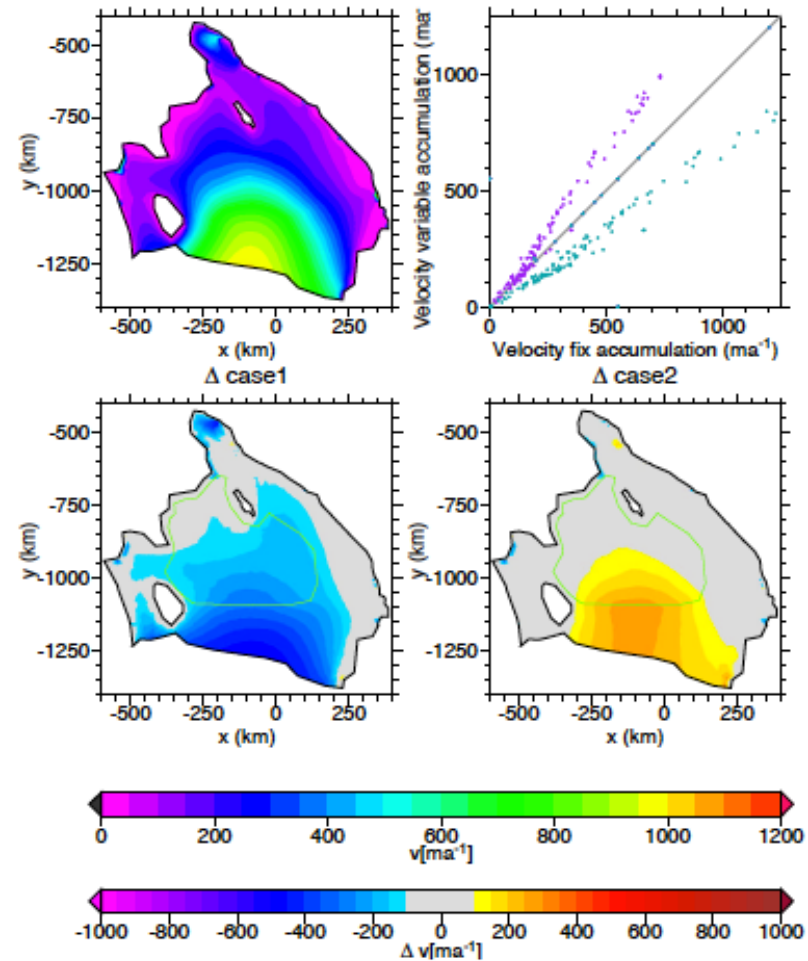
Parameterraum



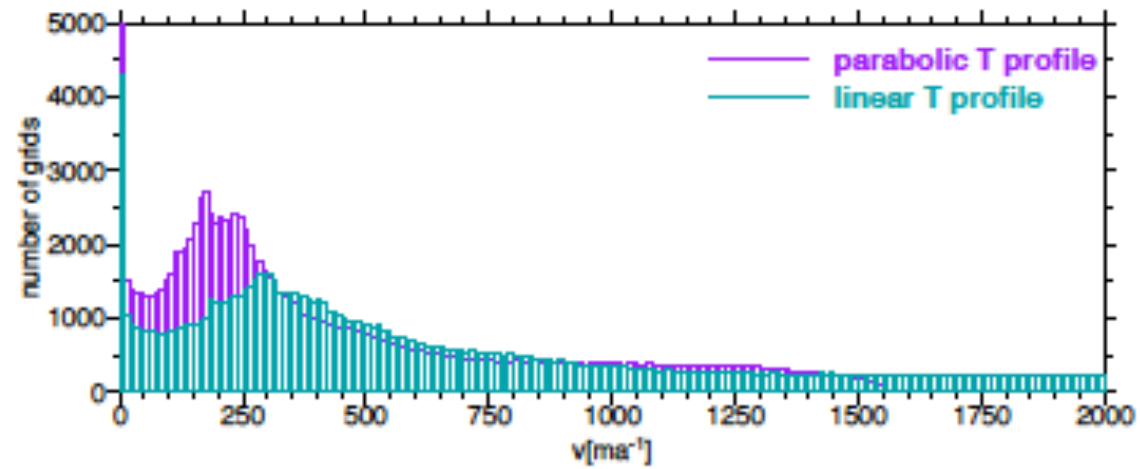
Datenvisualisierung – räumliche Verteilungen, Scatterplots



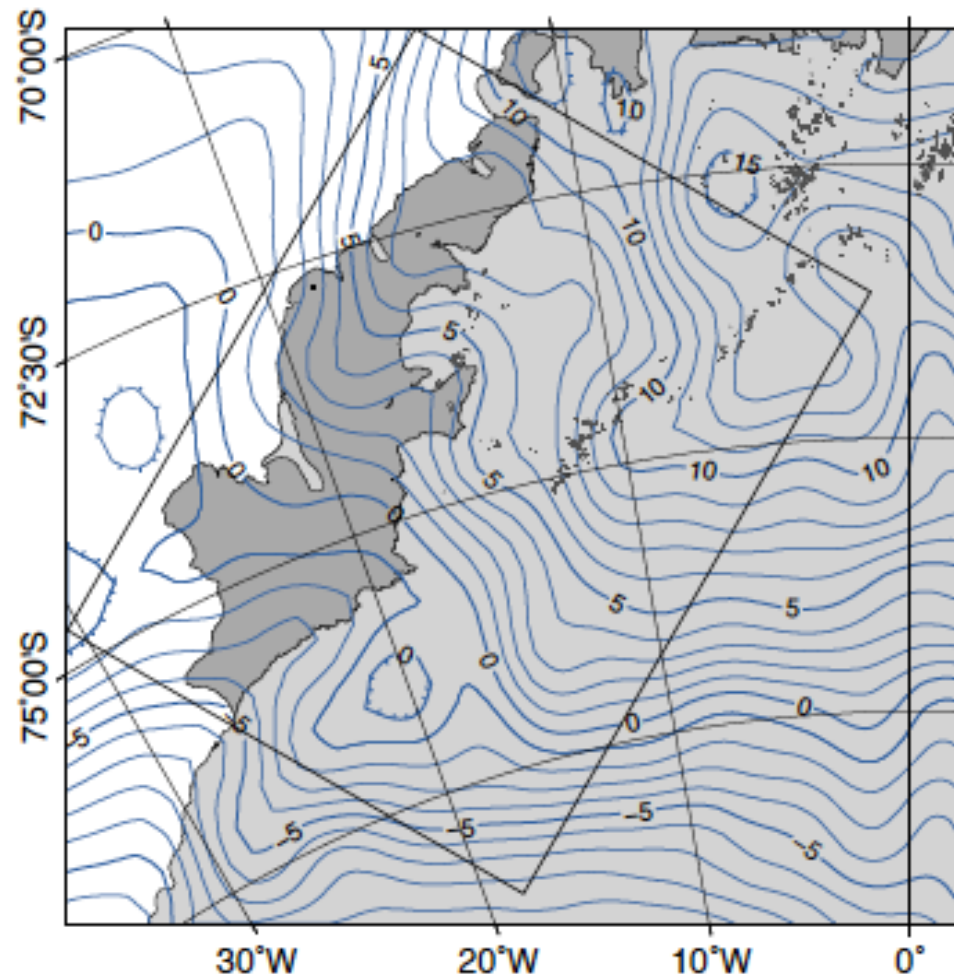
Datenvisualisierung – räumliche Verteilungen, Scatterplots



Datenvisualisierung - Histogramme

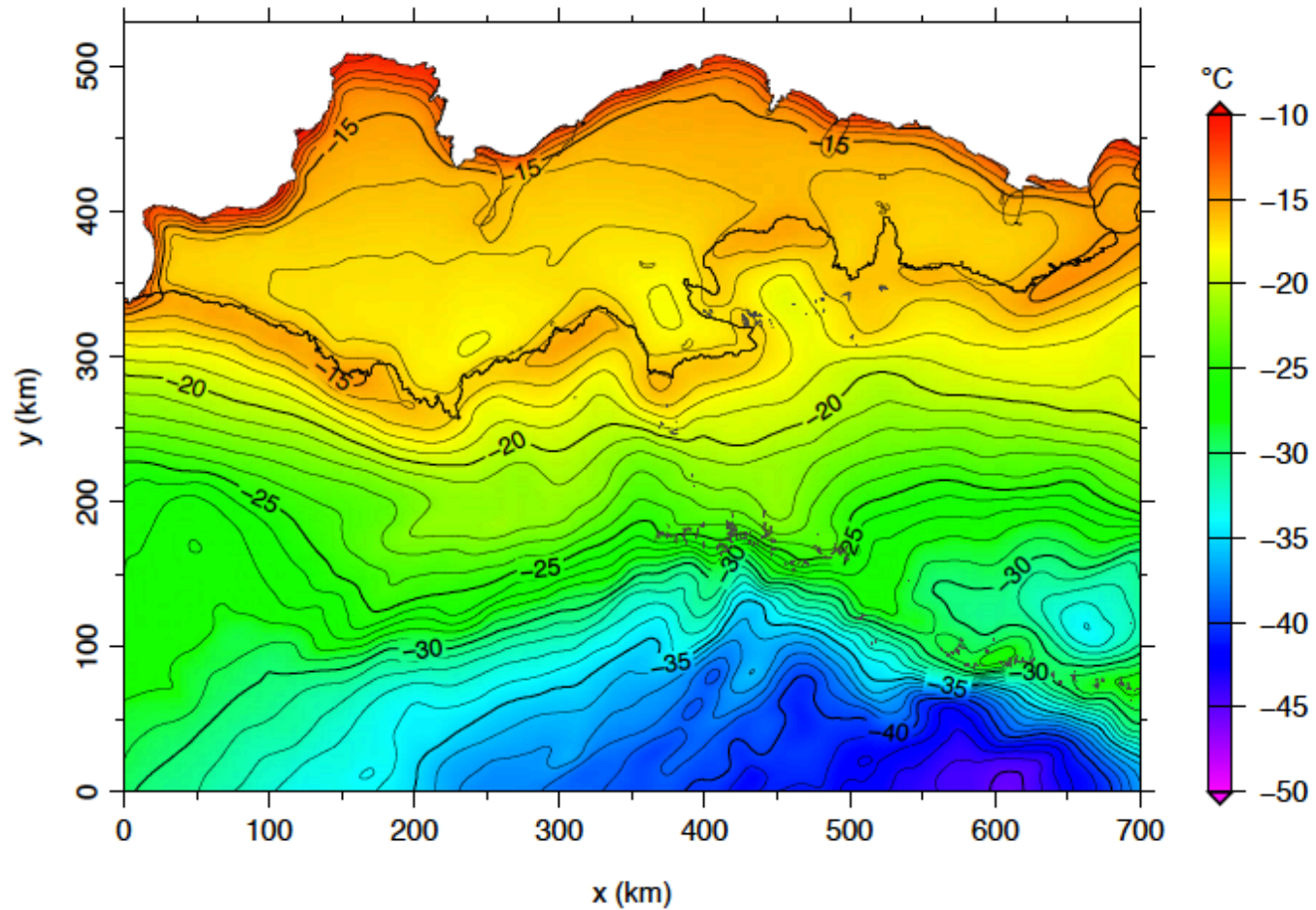


Datenvisualisierung - Konturlinien



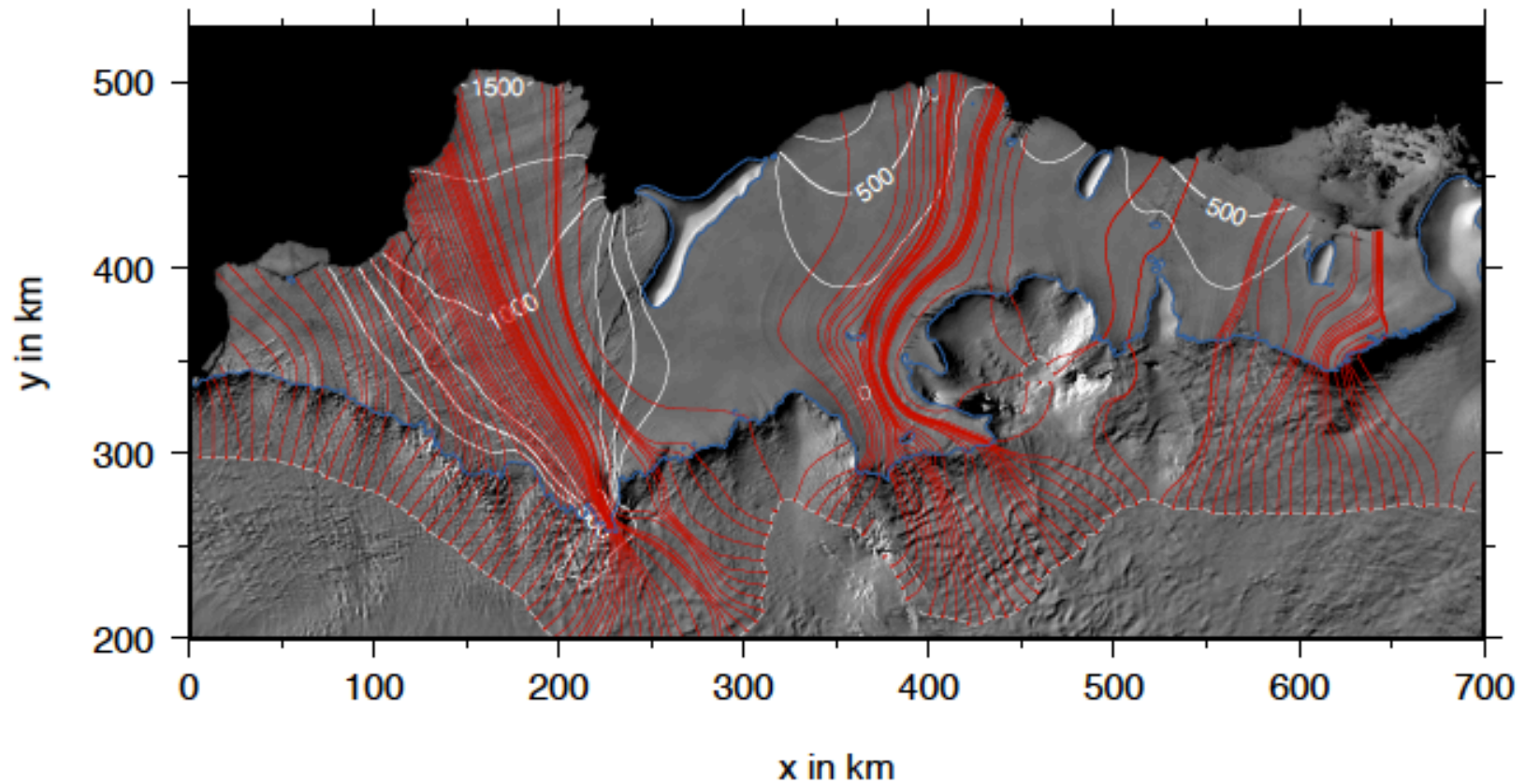
T. Kleiner 2010

Datenvisualisierung - Konturlinien



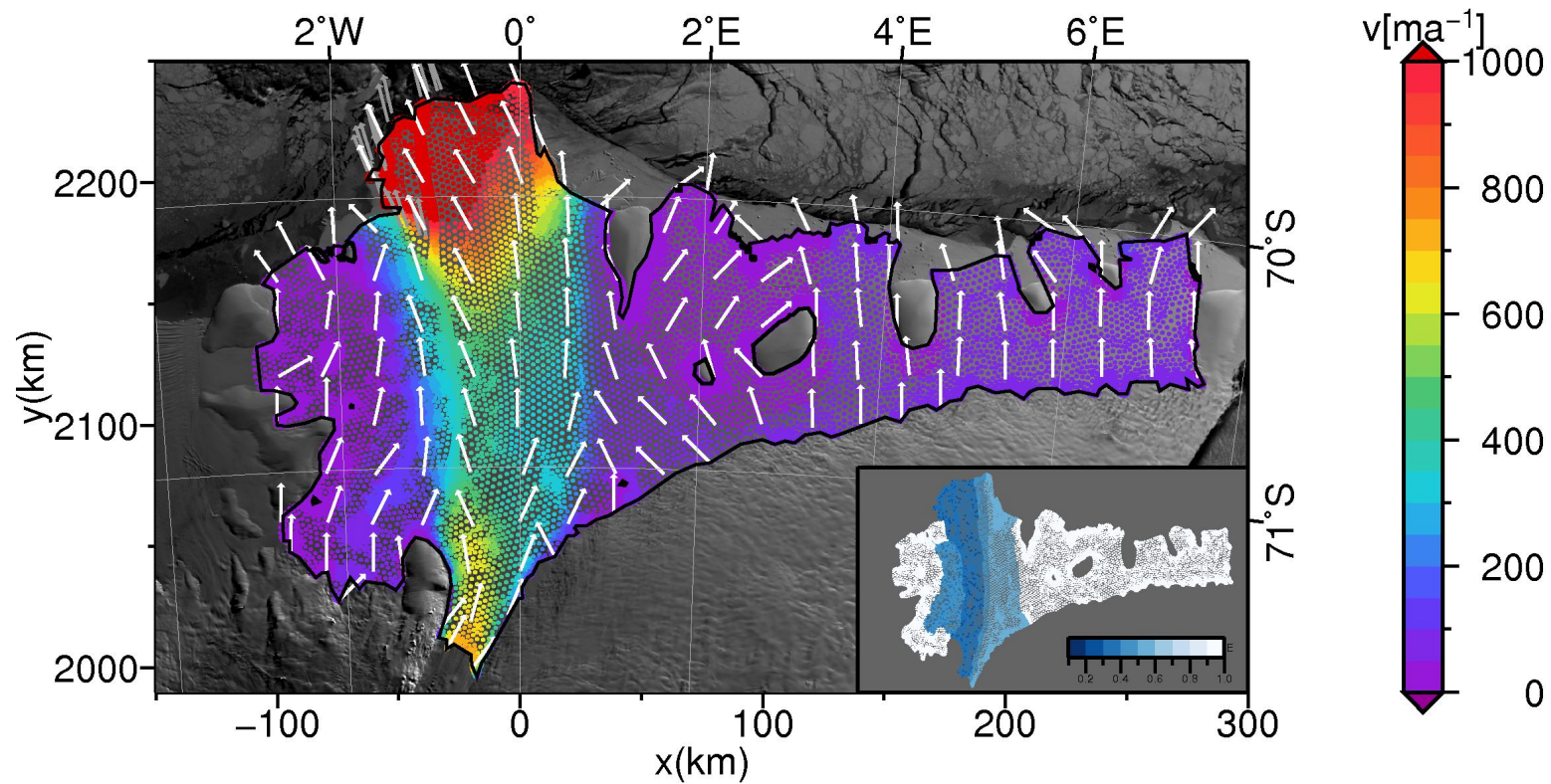
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Datenvisualisierung - Fließlinien

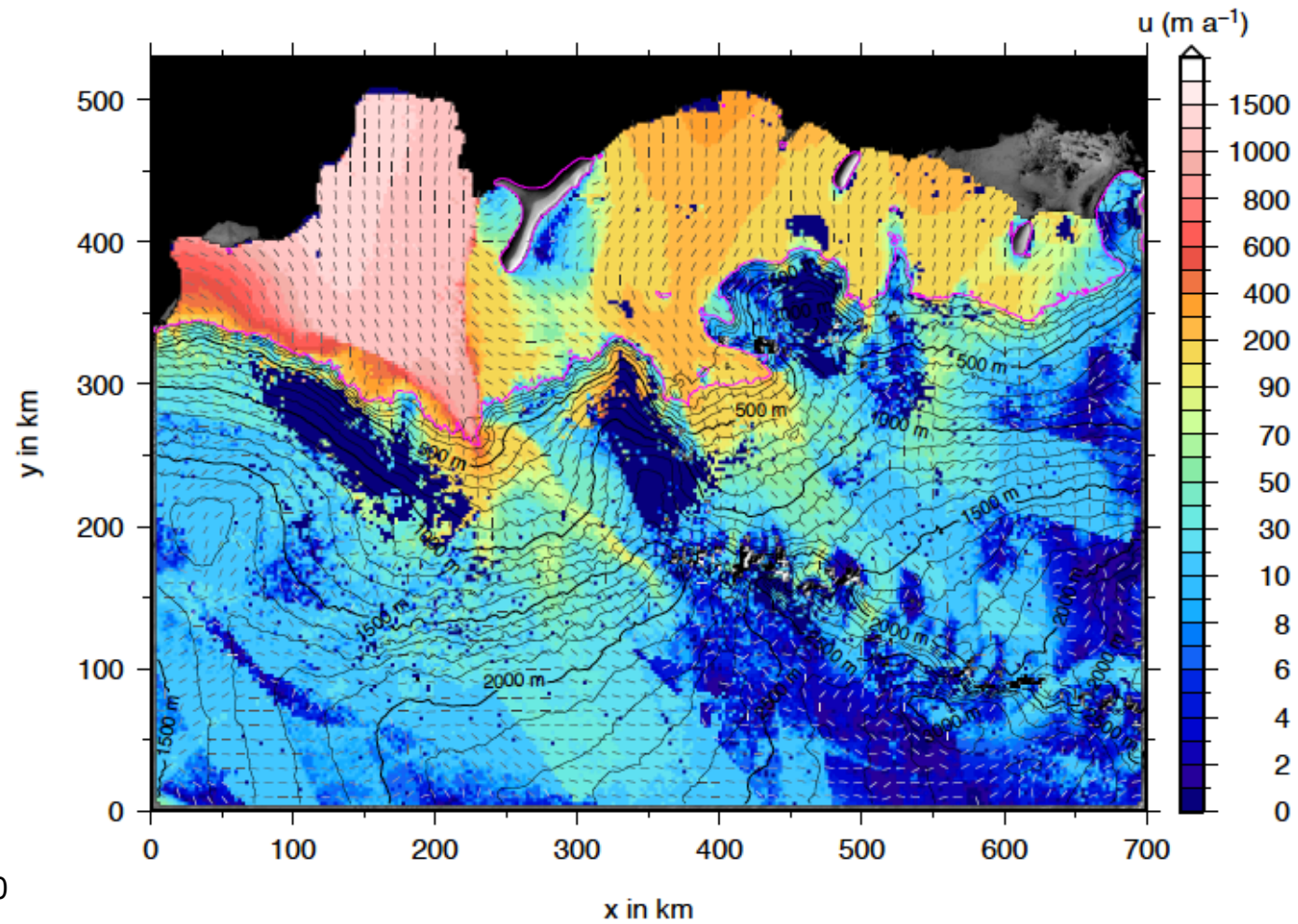


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Datenvisualisierung – Geschwindigkeiten, Fließrichtungen

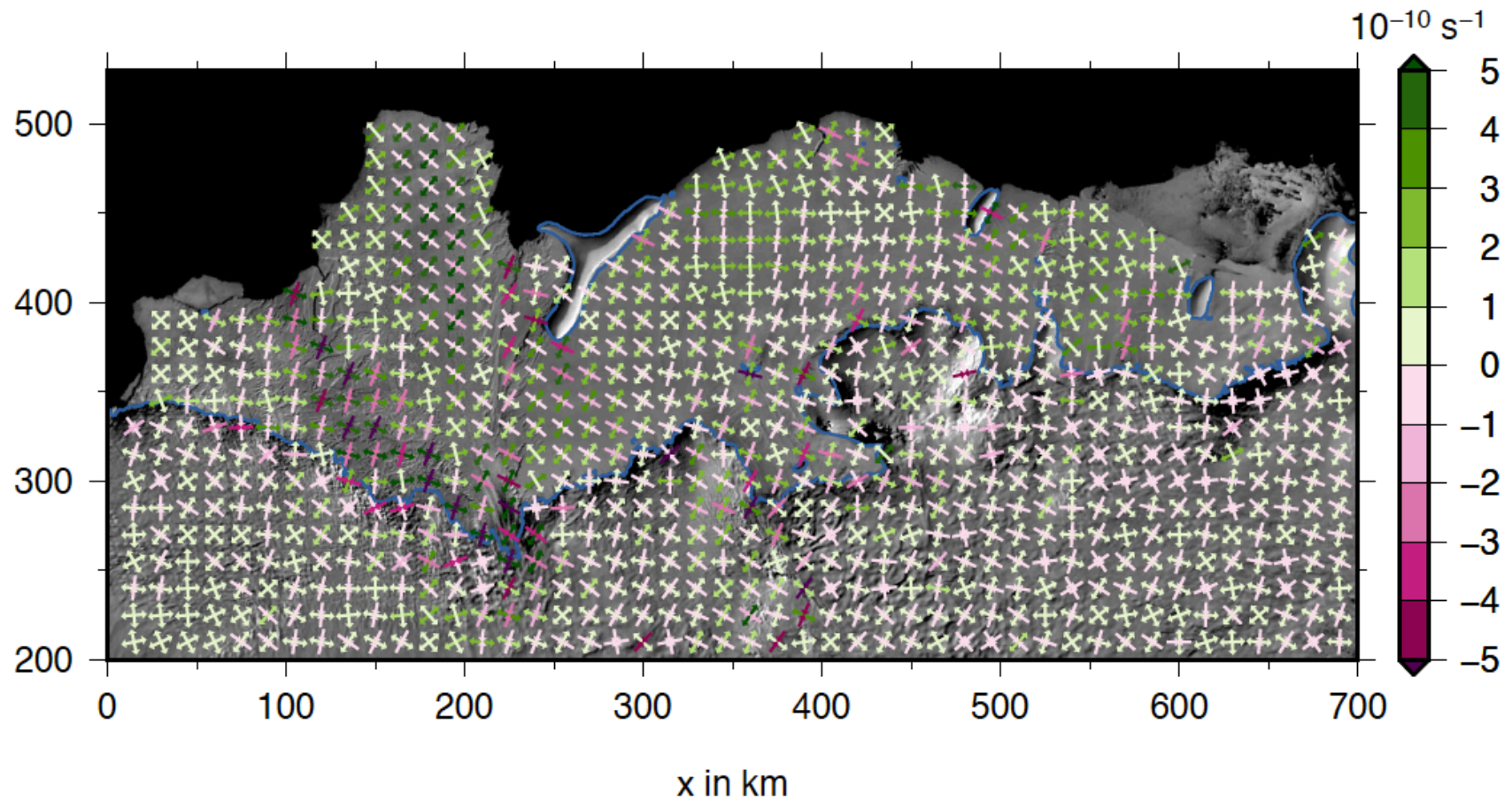


Datenvisualisierung – Geschwindigkeit, Richtung, Topographie



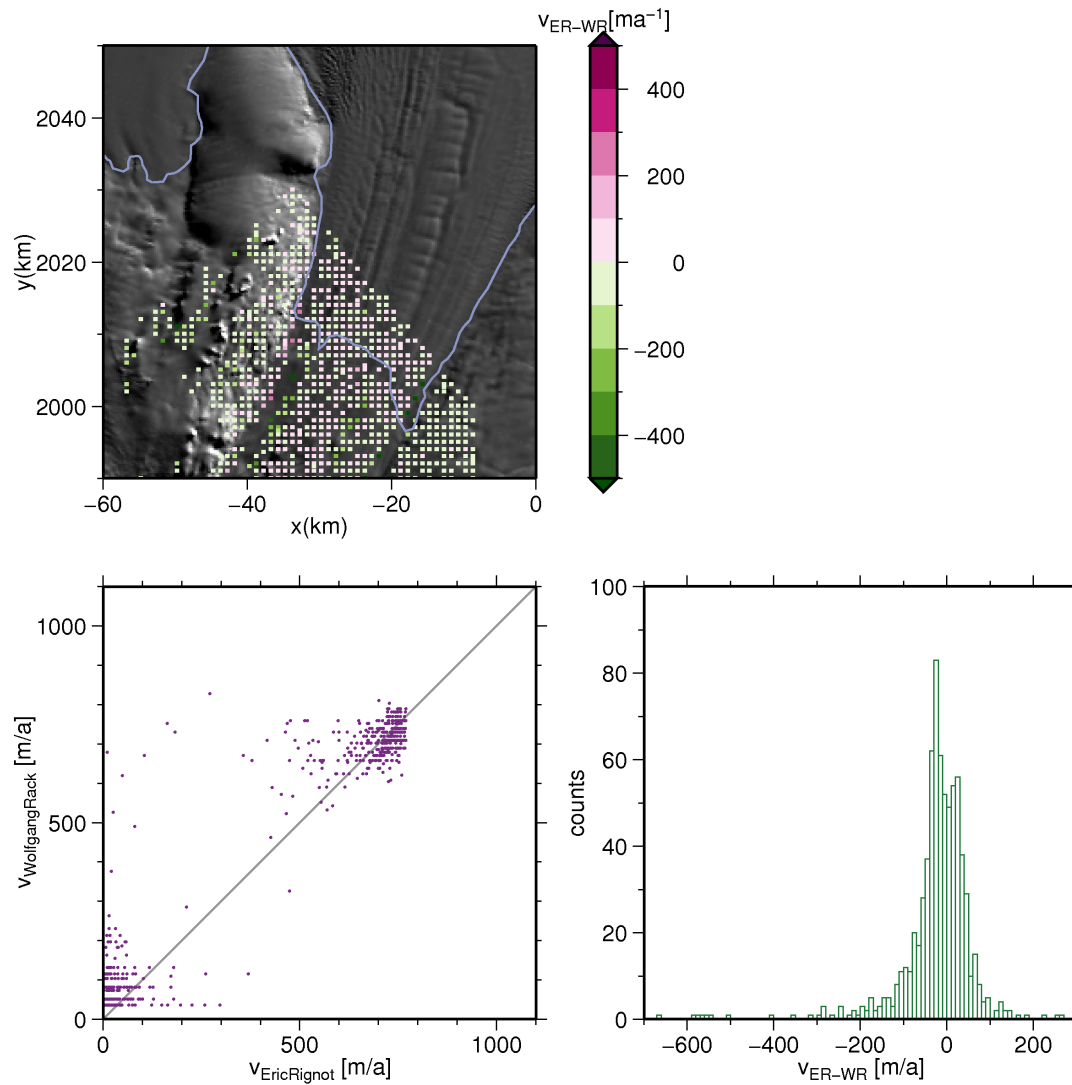
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Datenvisualisierung – Spannungsfelder, Dehnraten

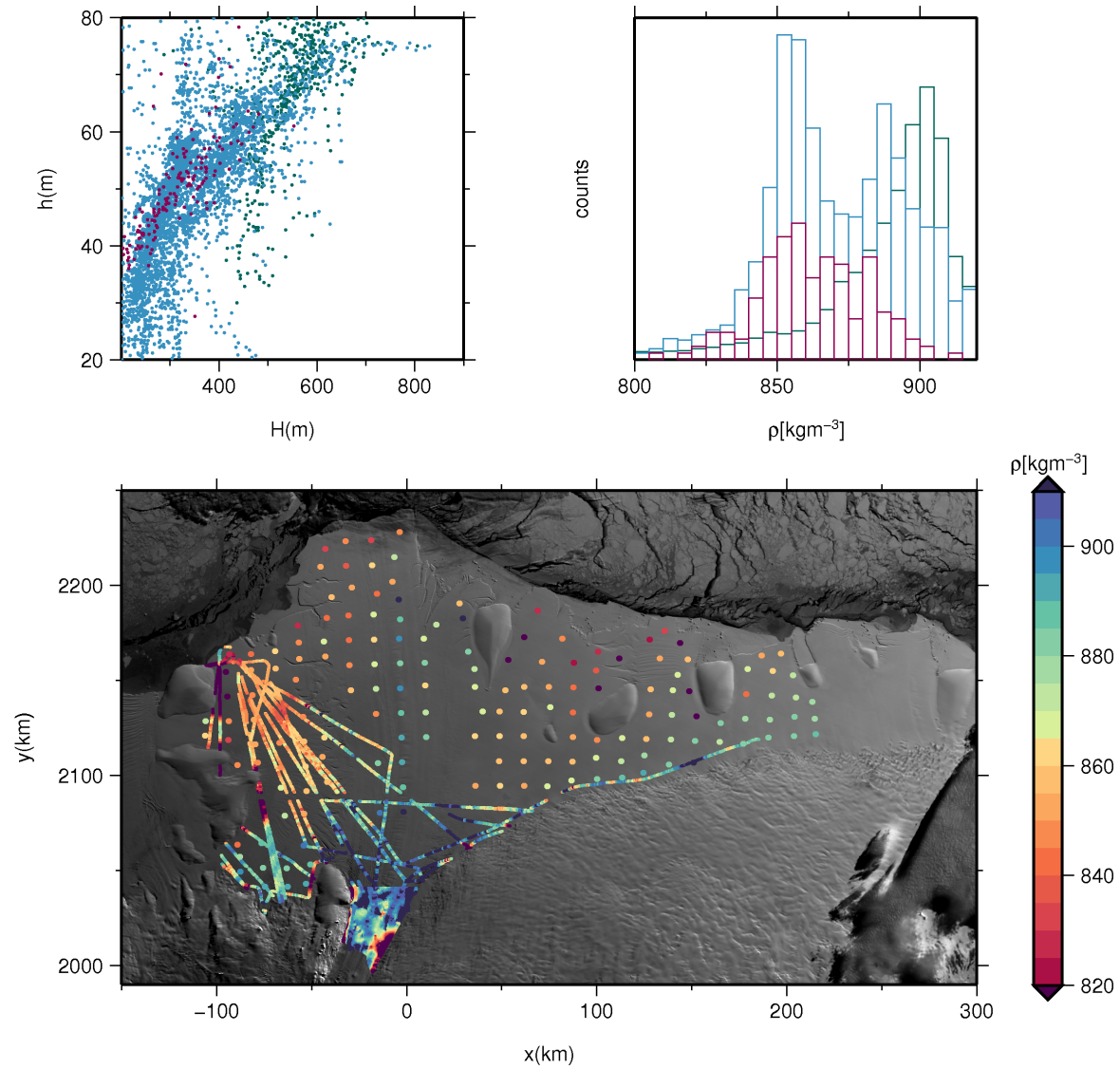


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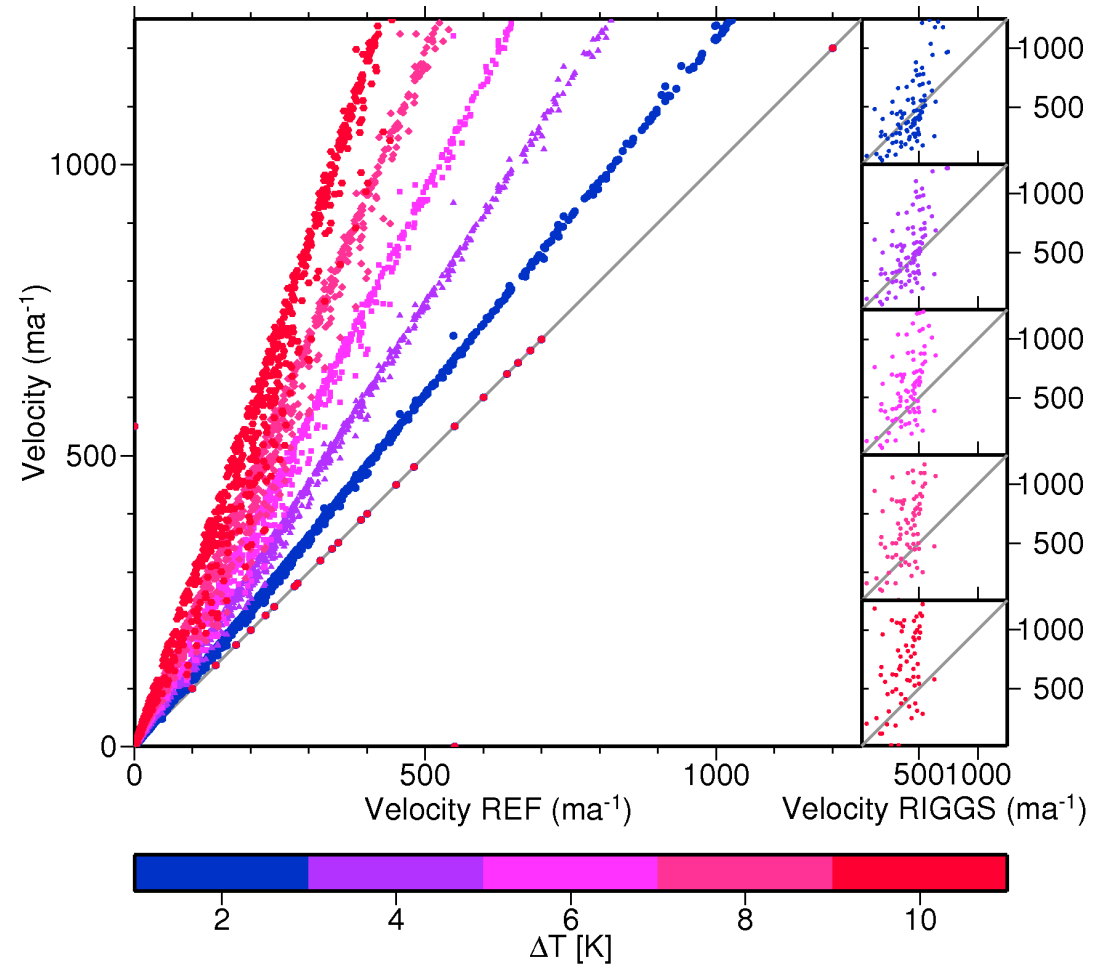
Vergleich zweier Datensätze in einer Region



Vergleich dreier Datensätze in einer Region



Simulationen



Simulationen

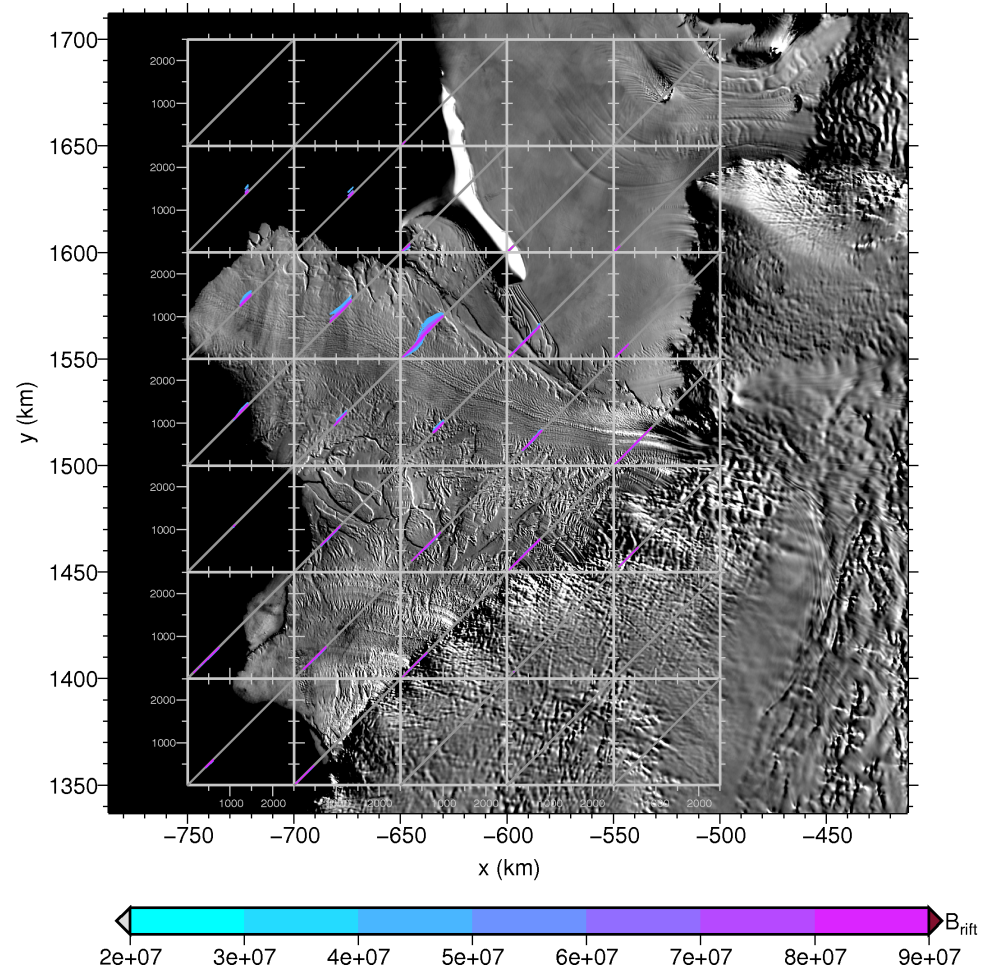
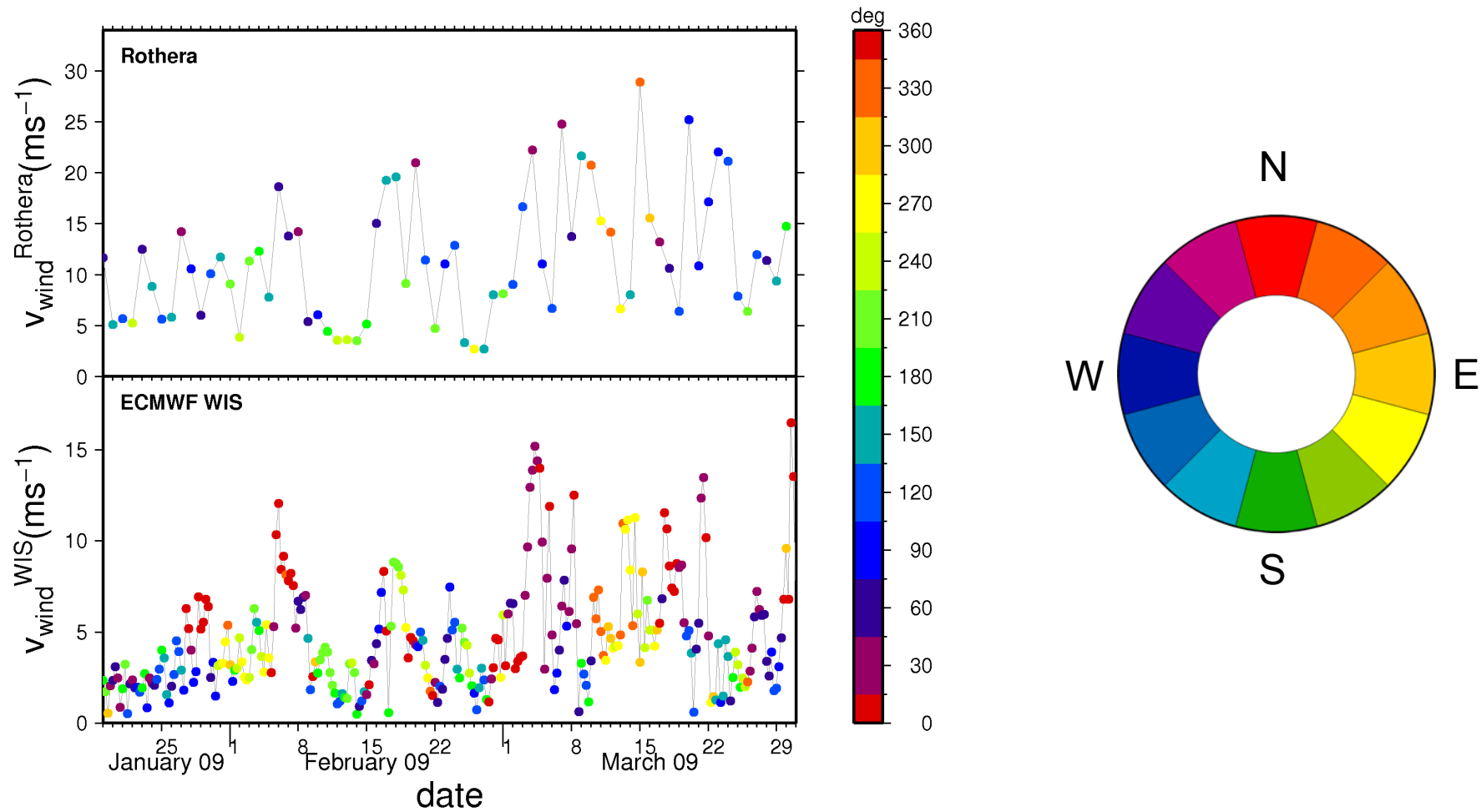
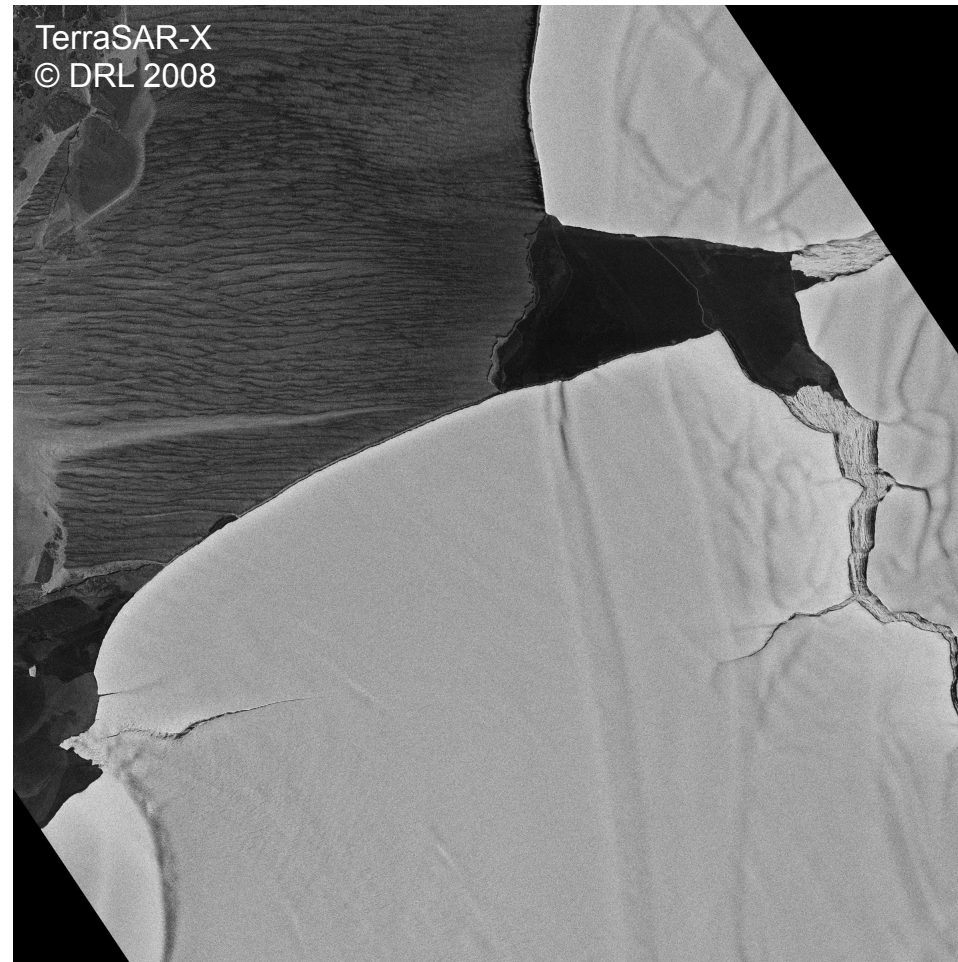


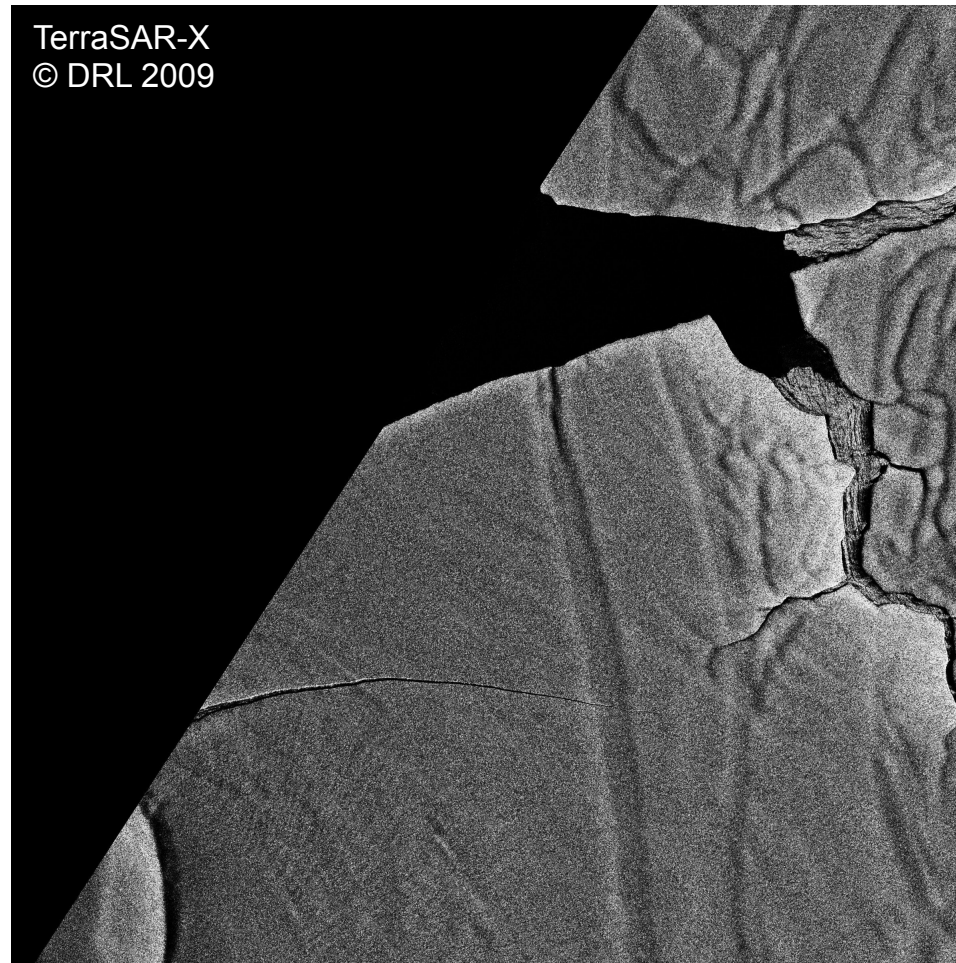
Diagramme mit Windrichtungen



Darstellung von Satellitenbildern als Composites



Darstellung von Satellitenbildern als Composites

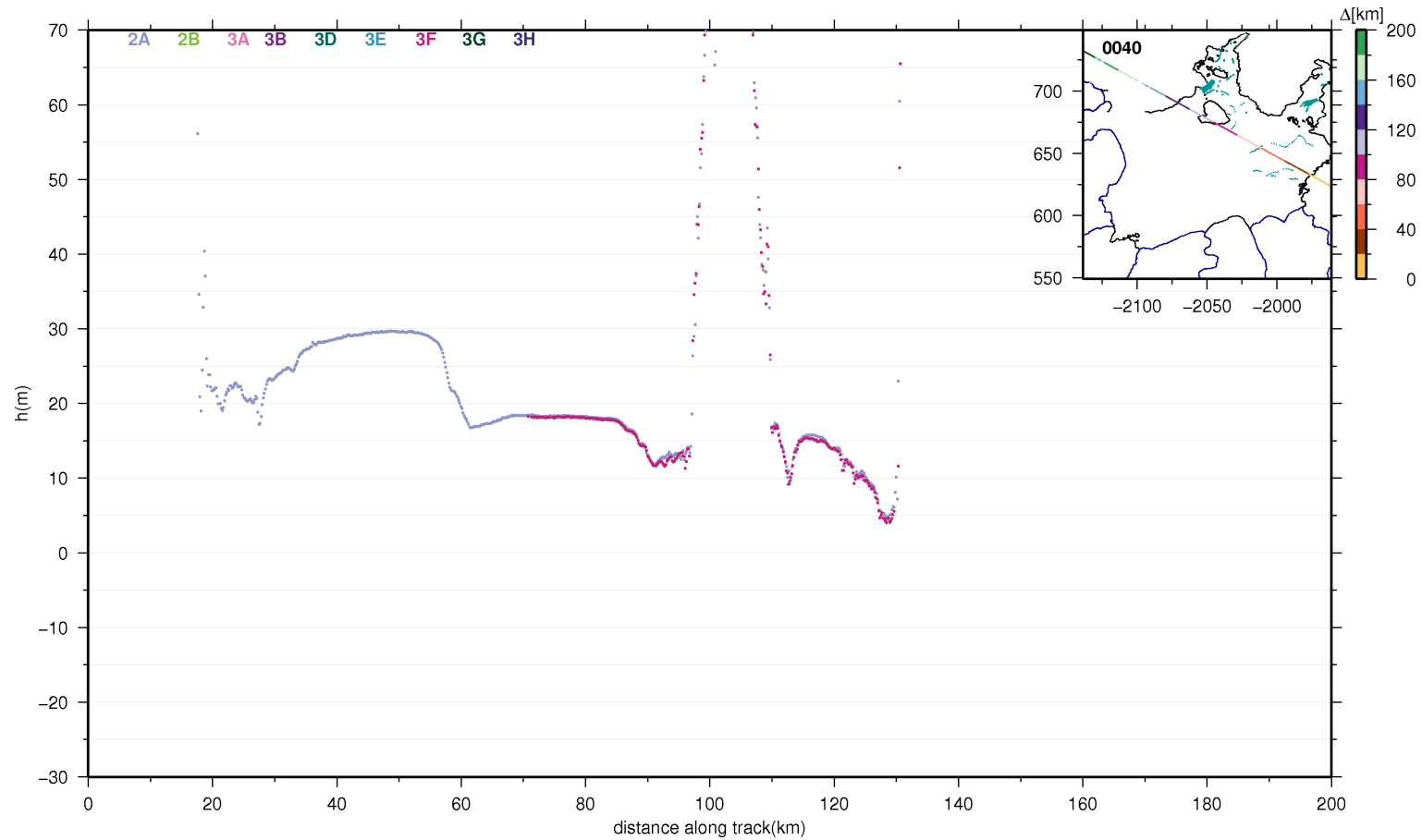


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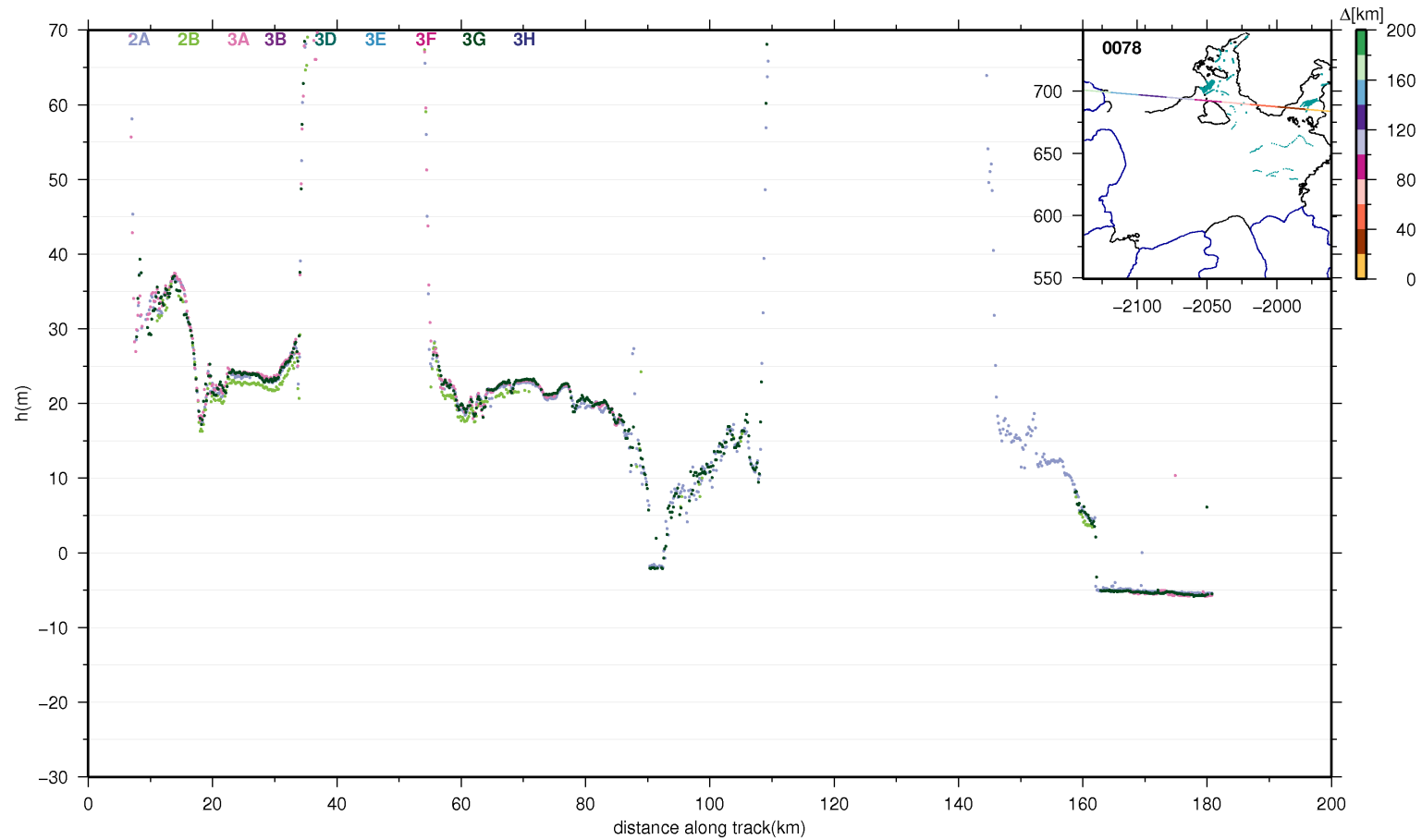


Rohdaten -> Endprodukt

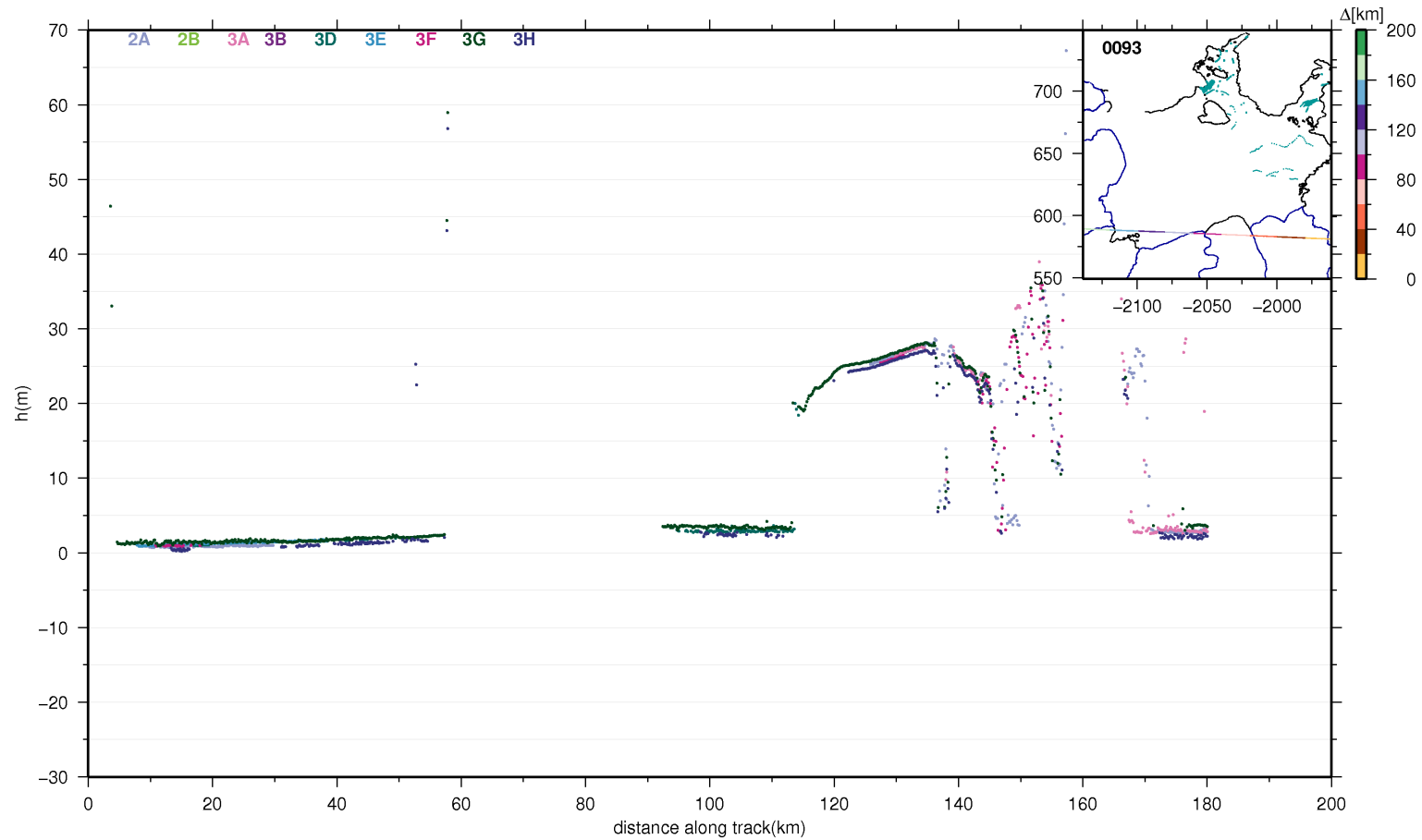
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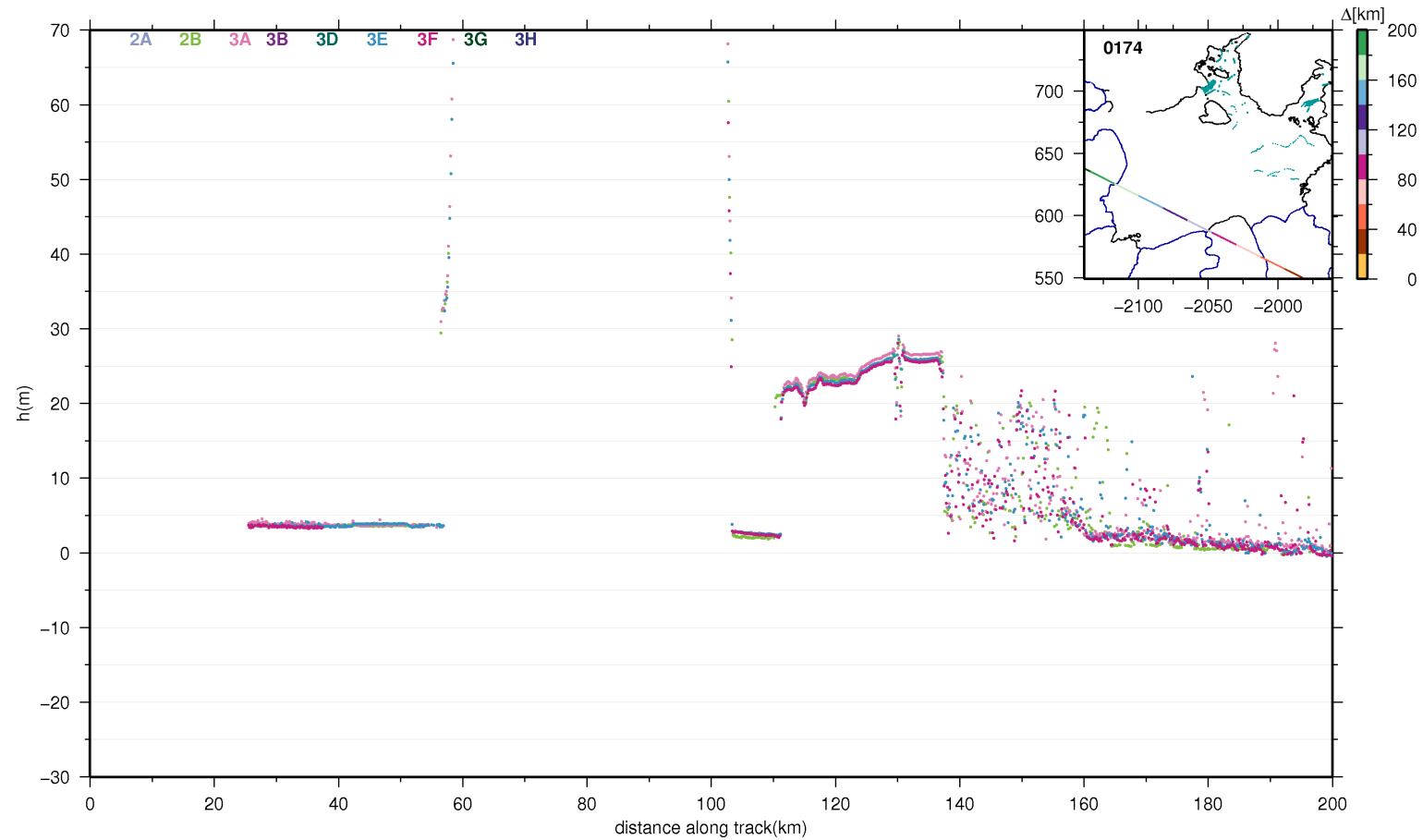
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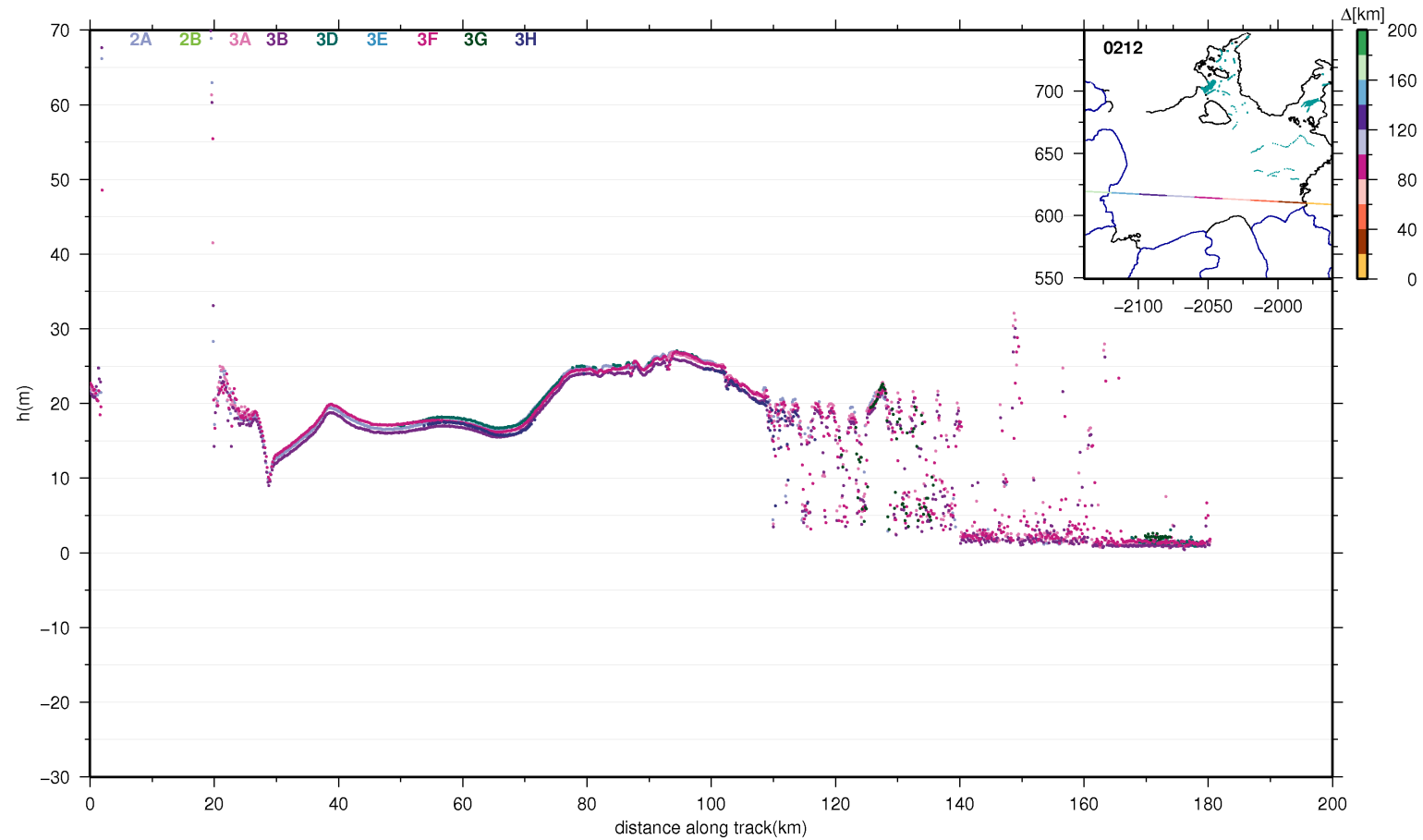
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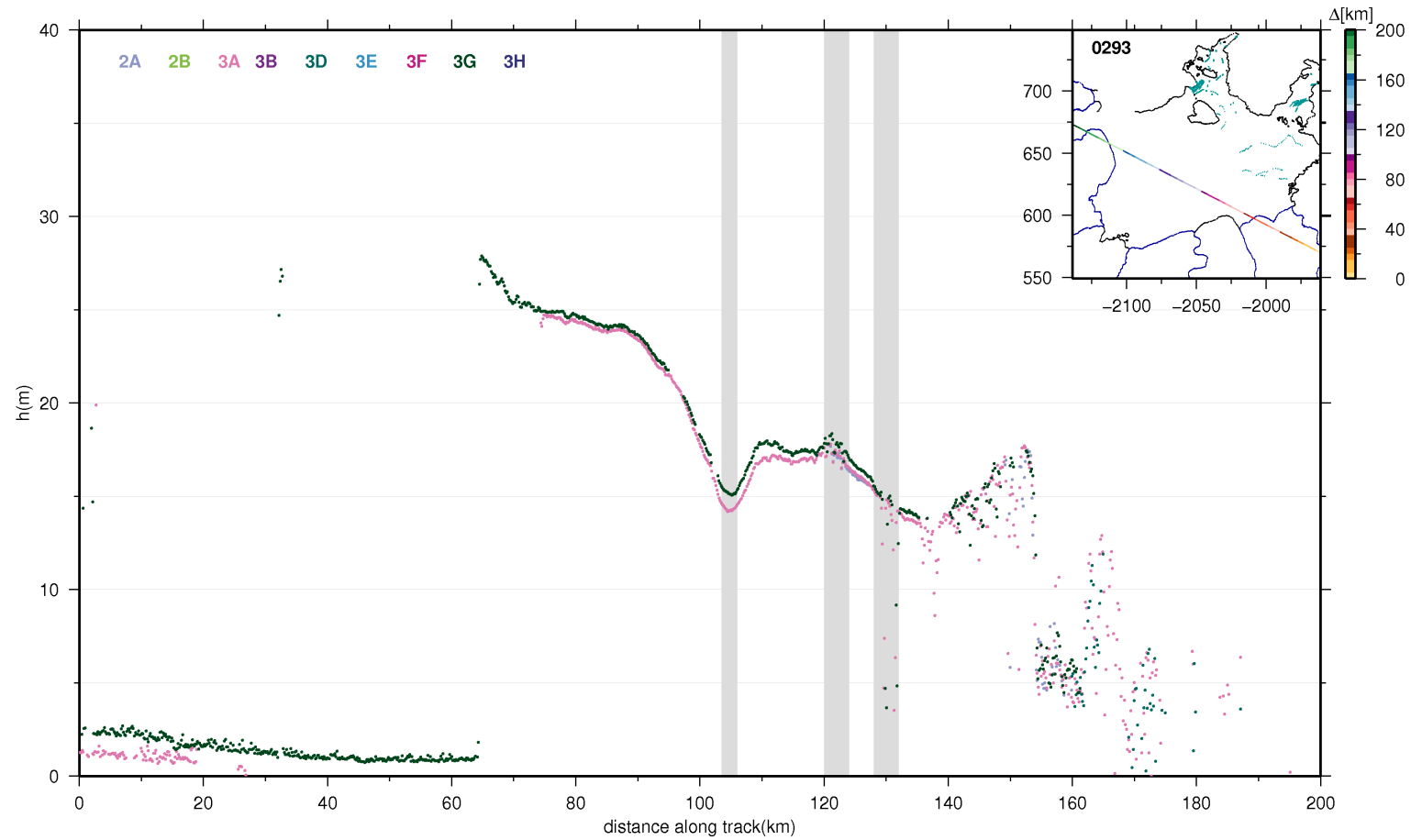
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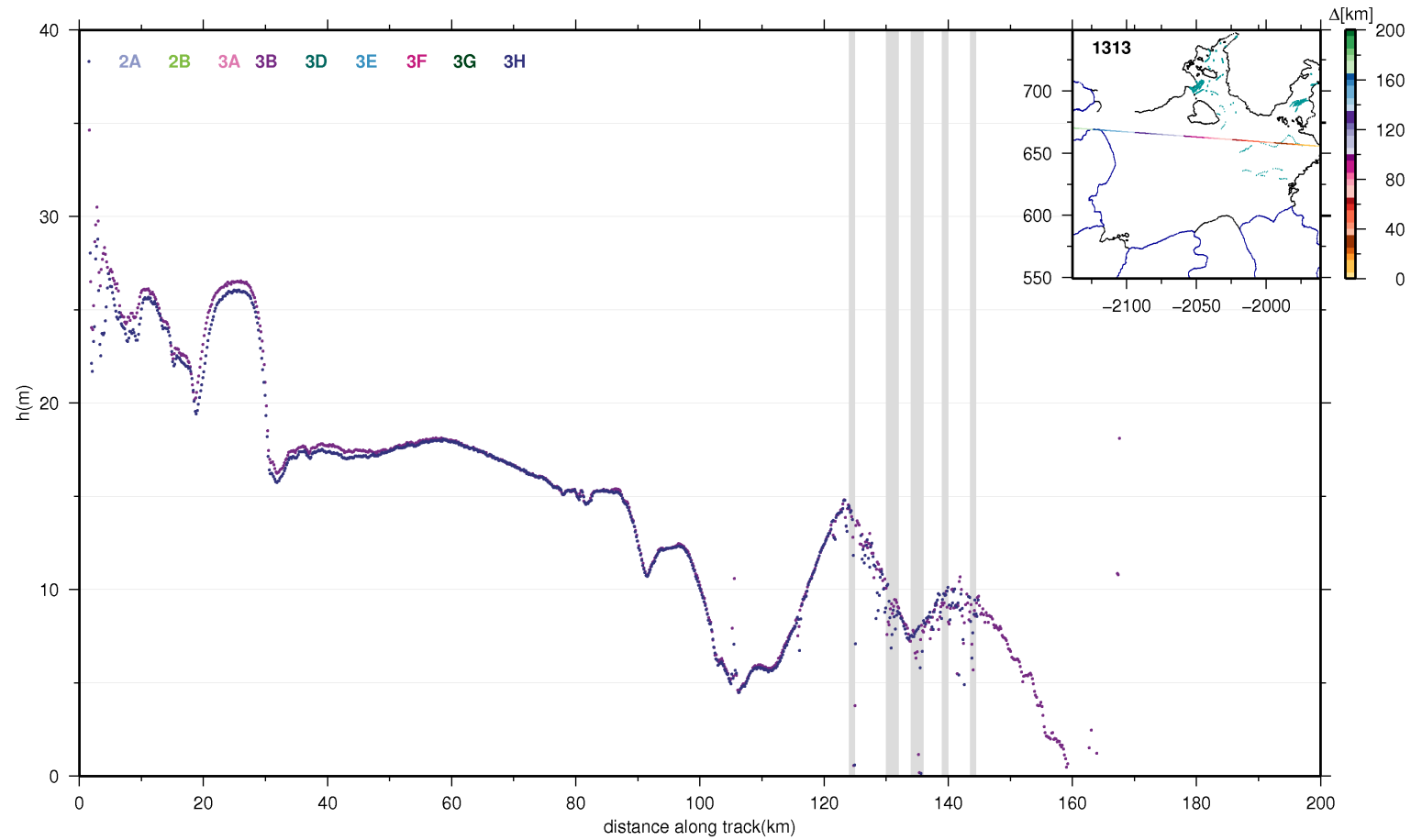
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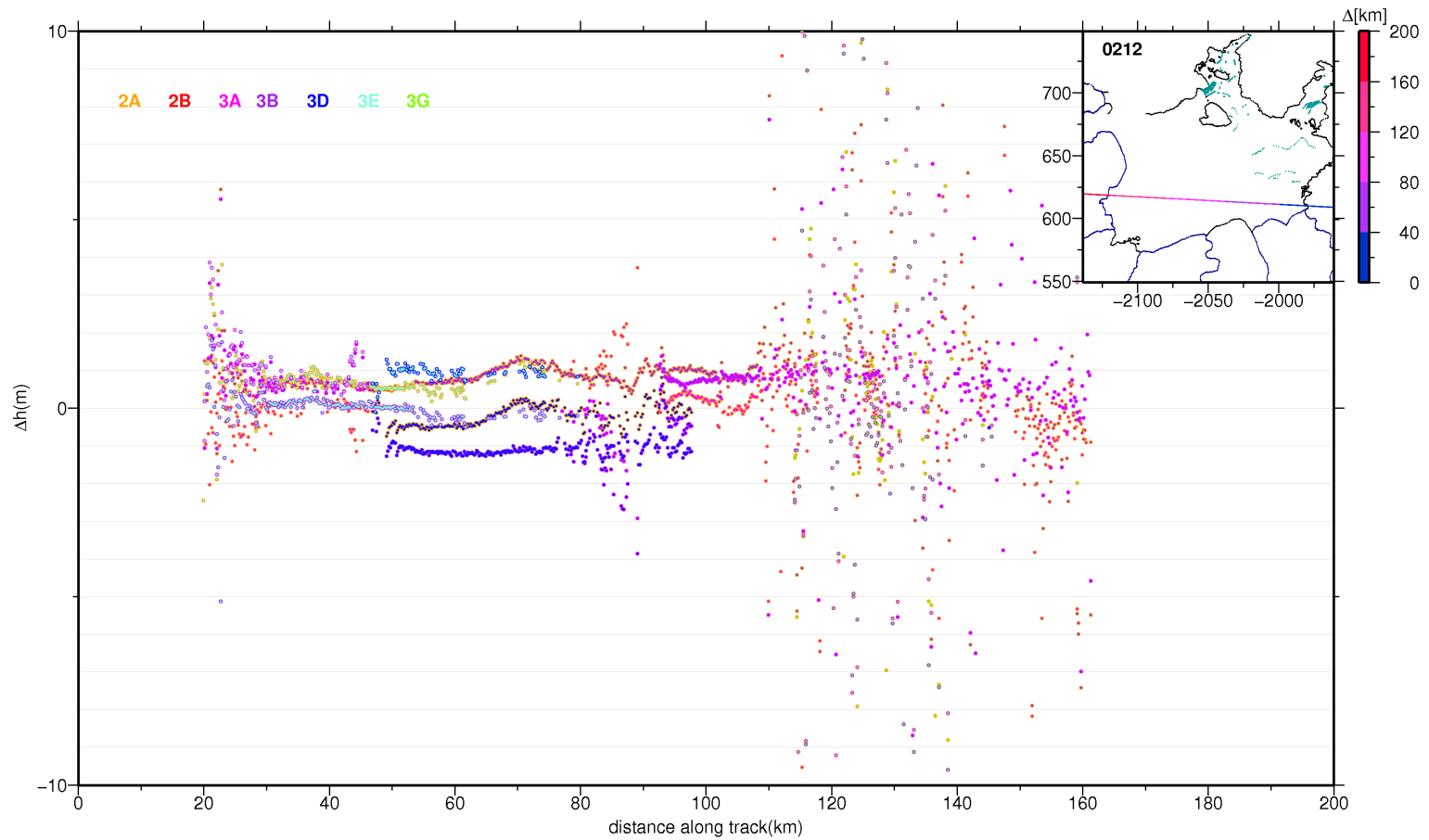
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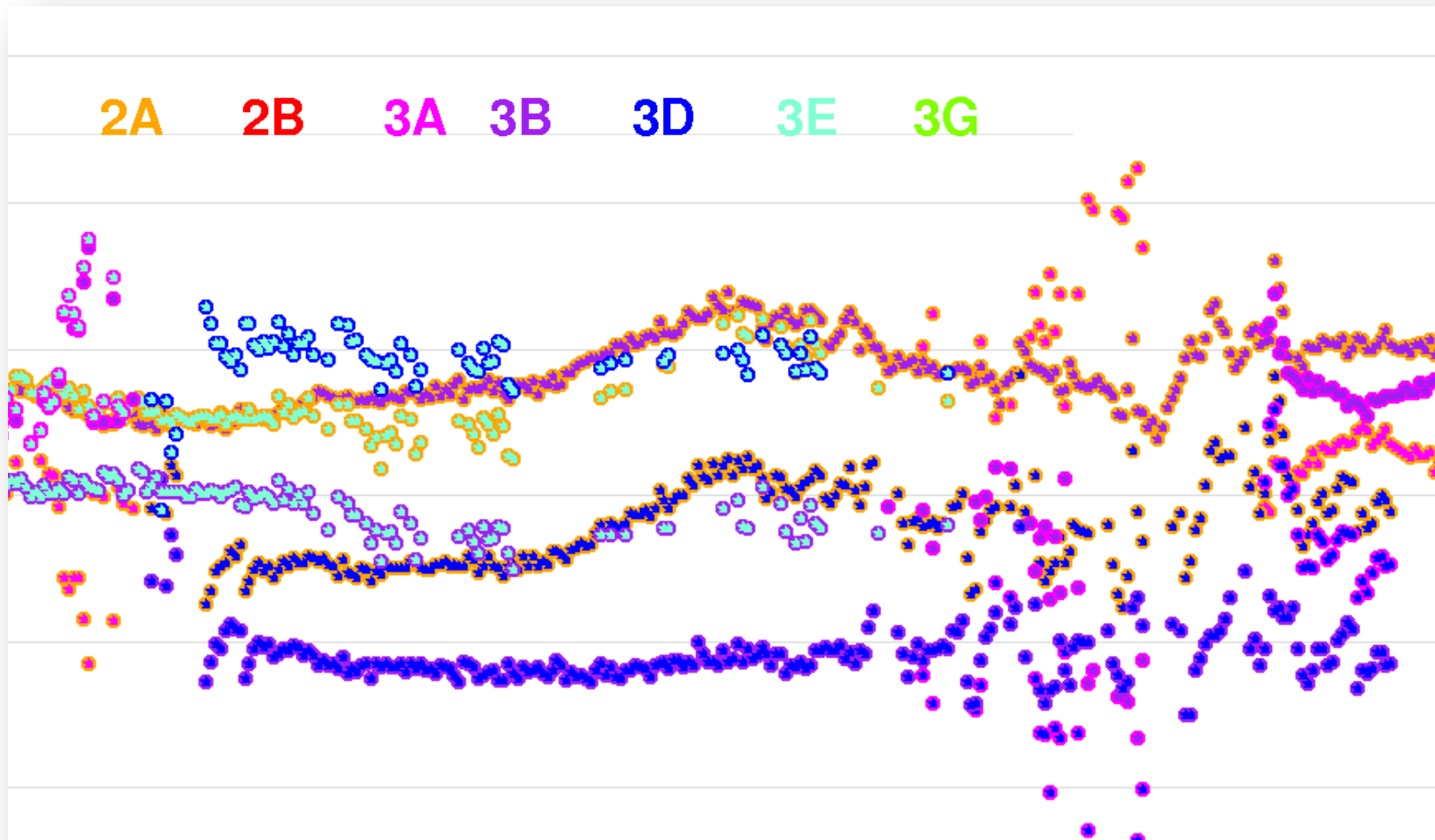
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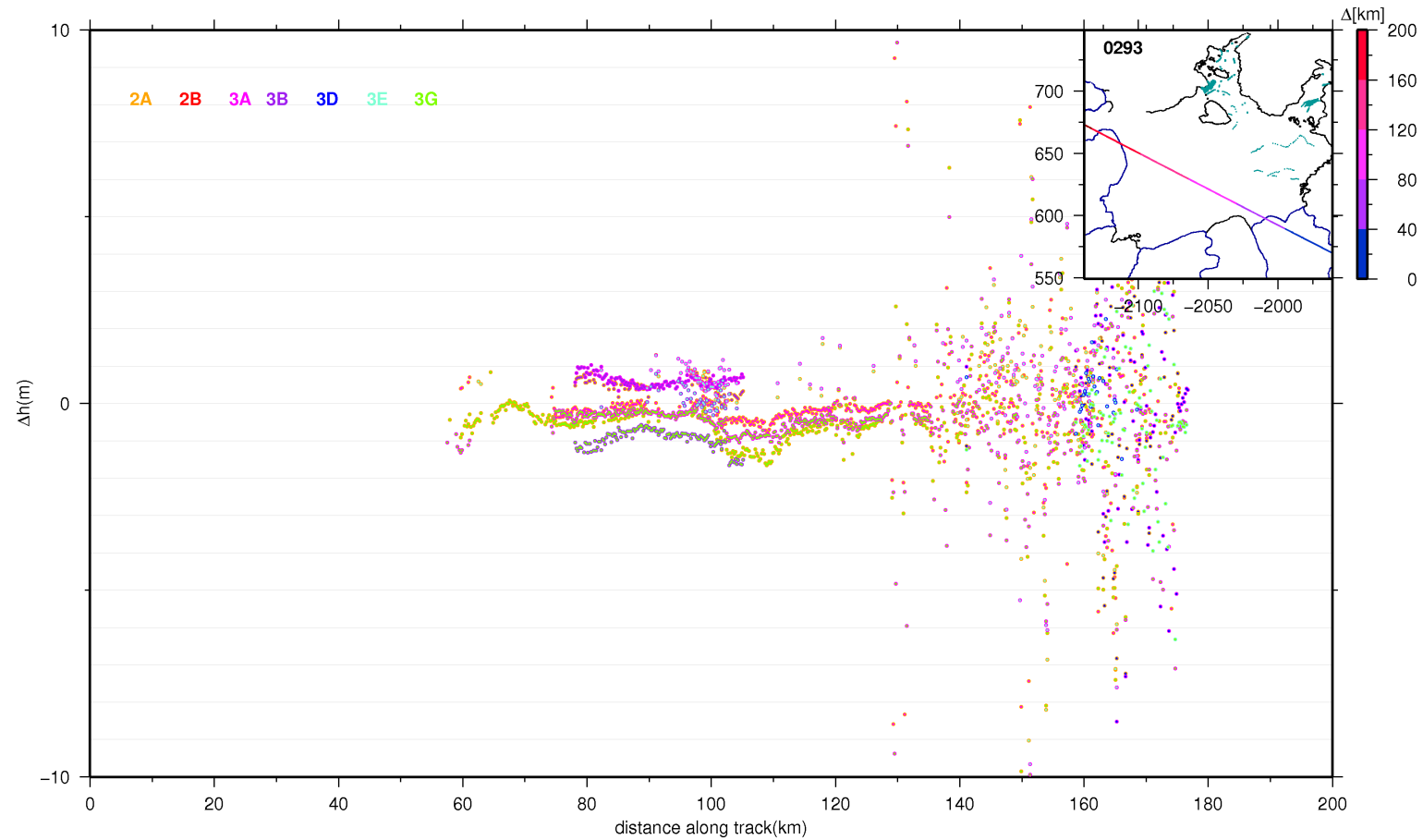
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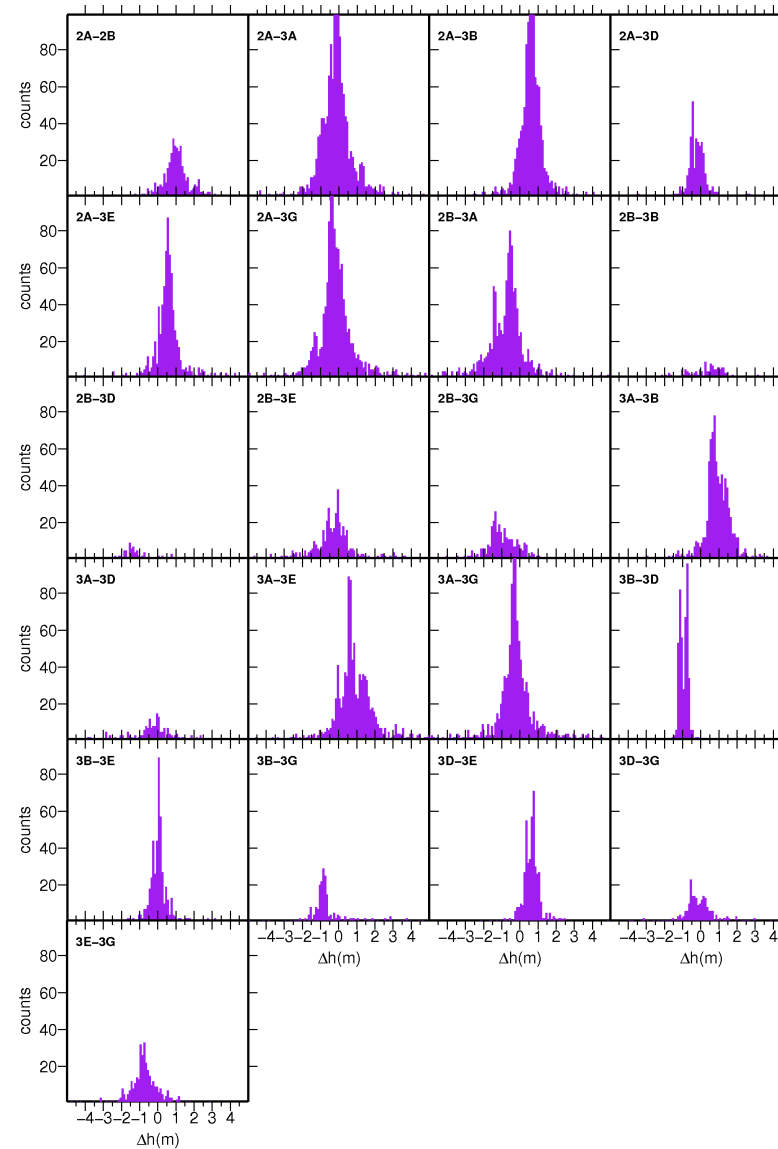
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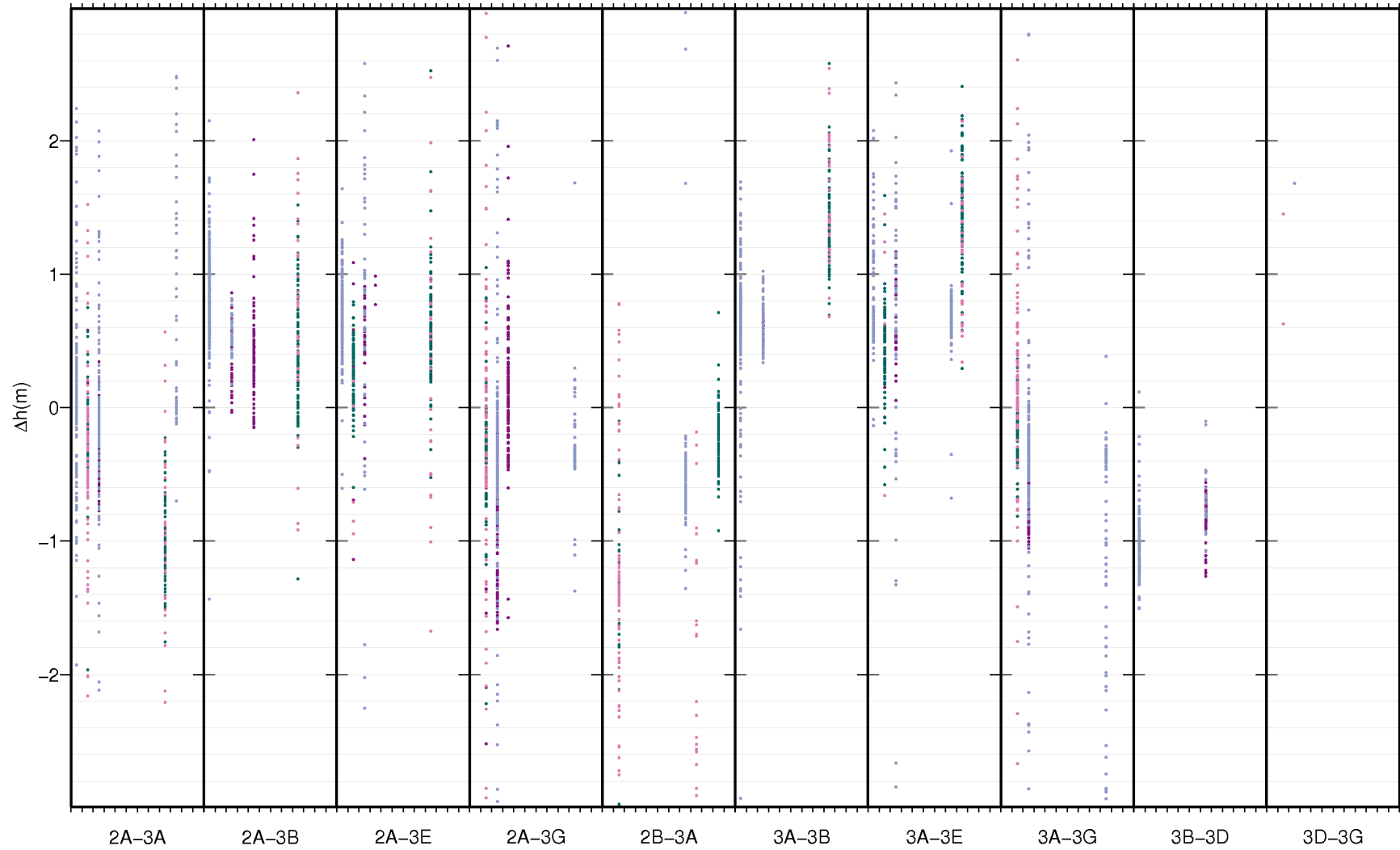
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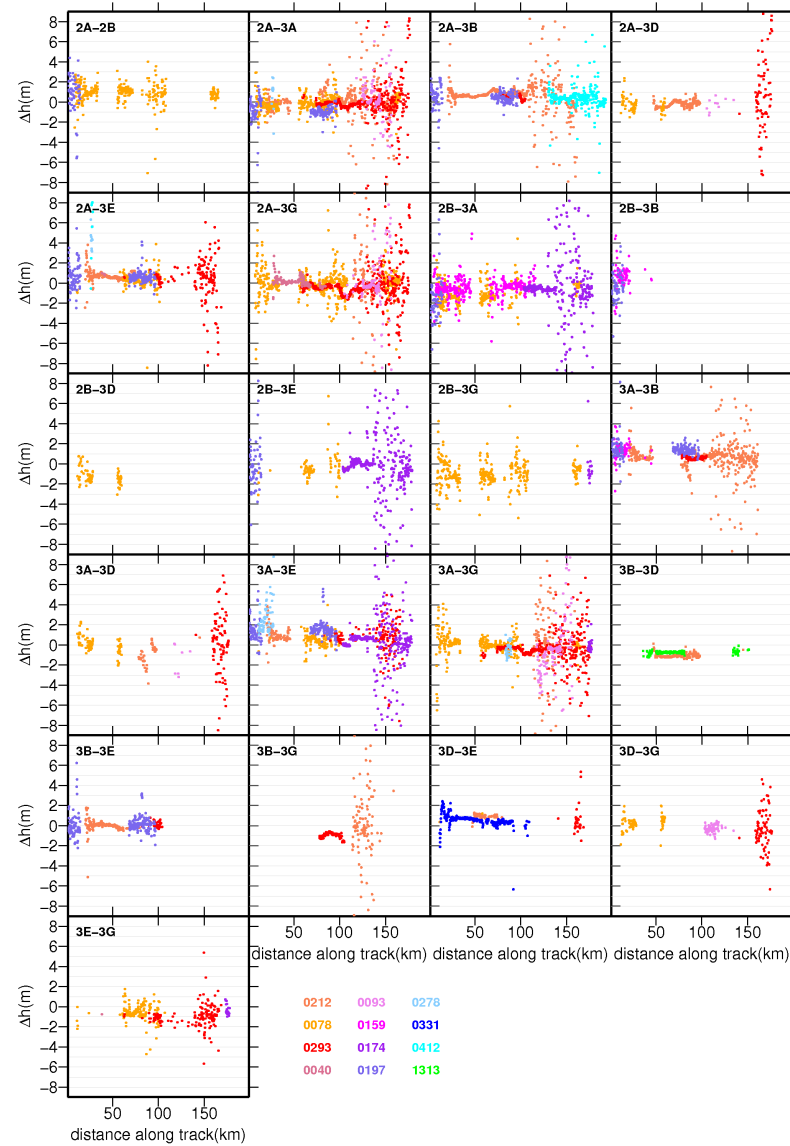
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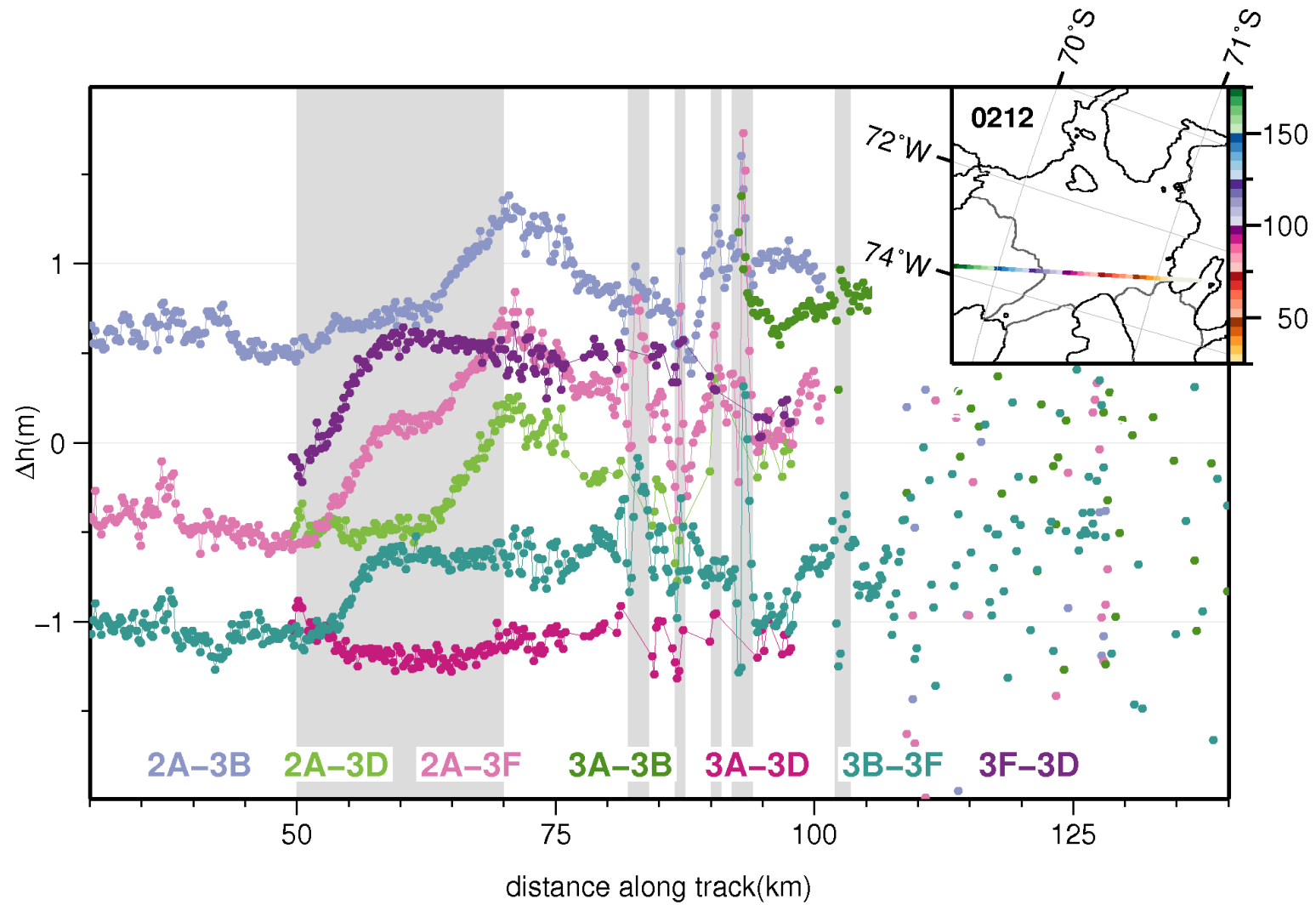
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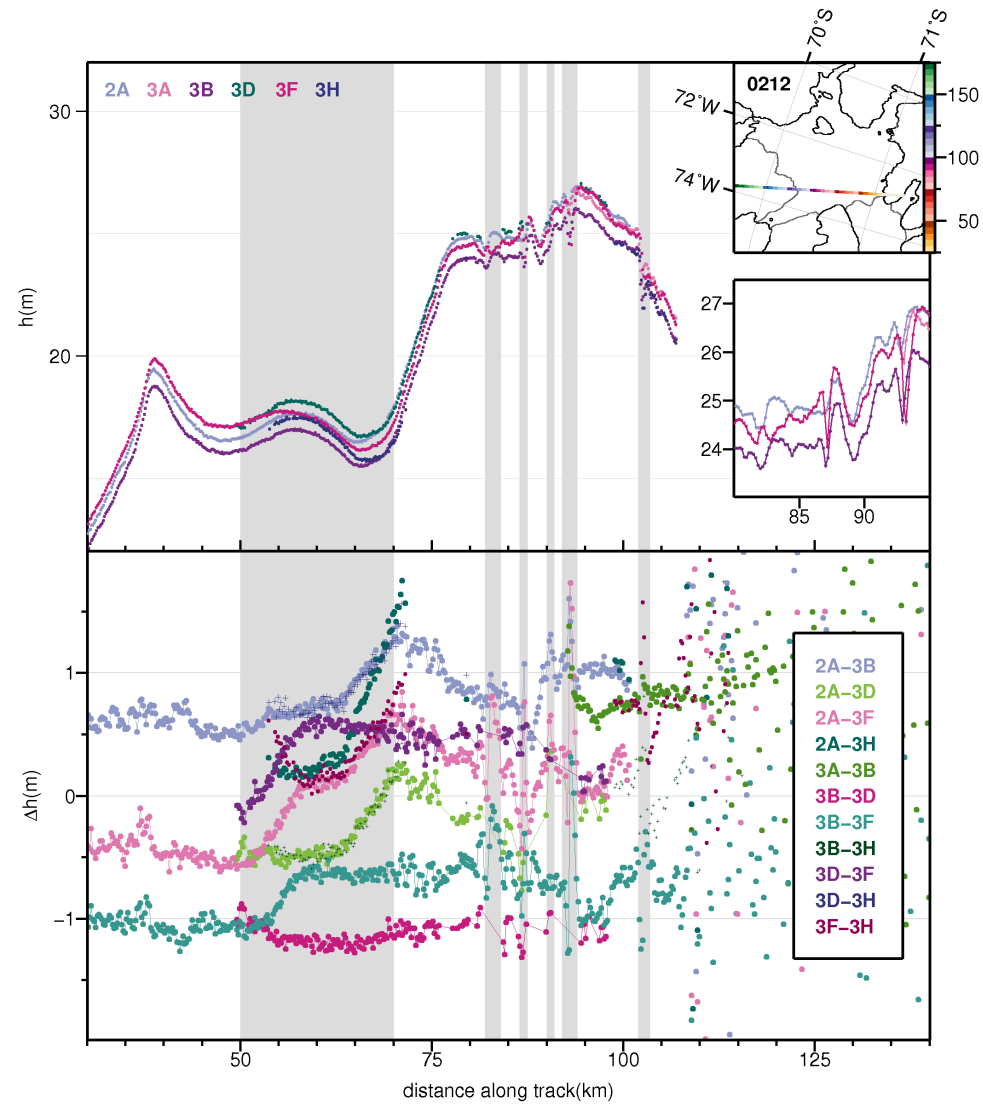
Rohdaten -> Endprodukt



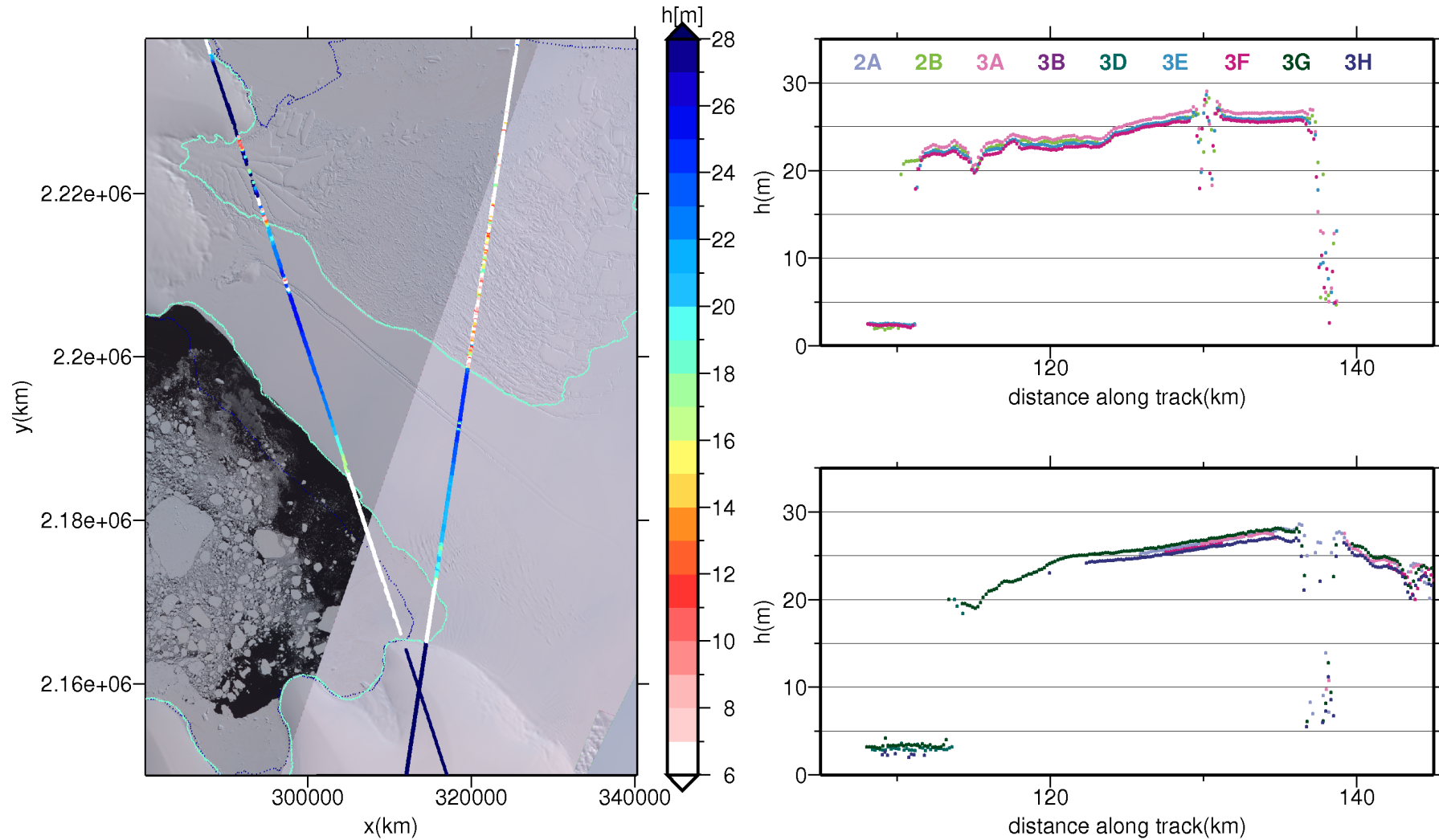
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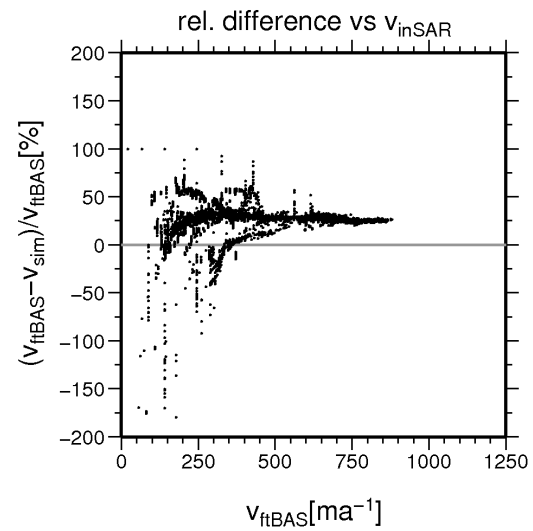
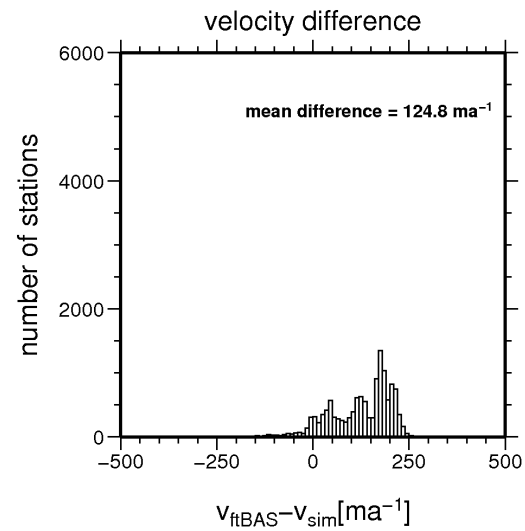
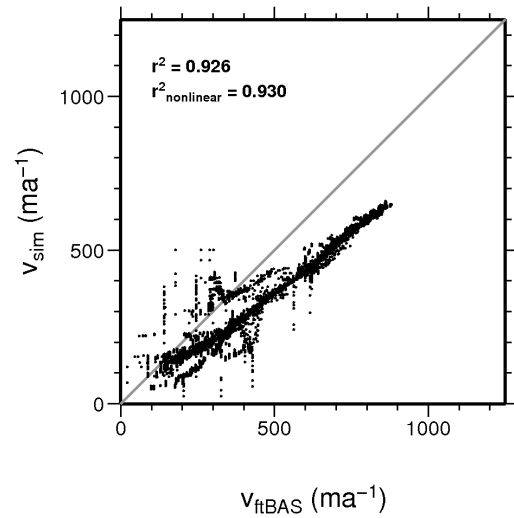
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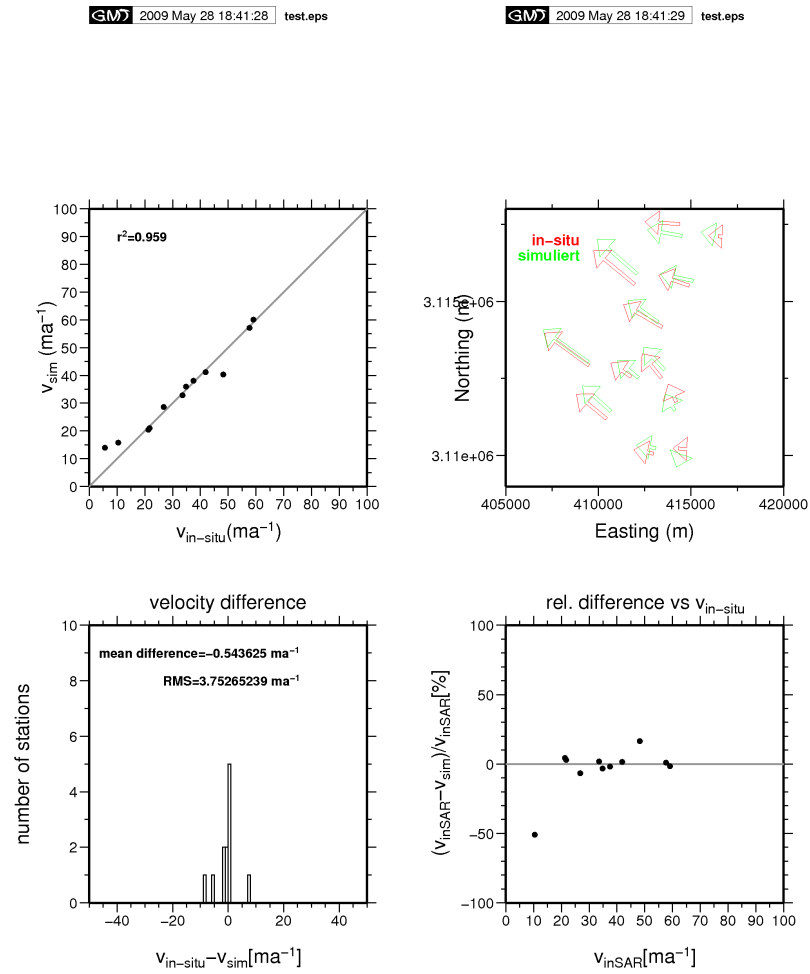
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Simulationen

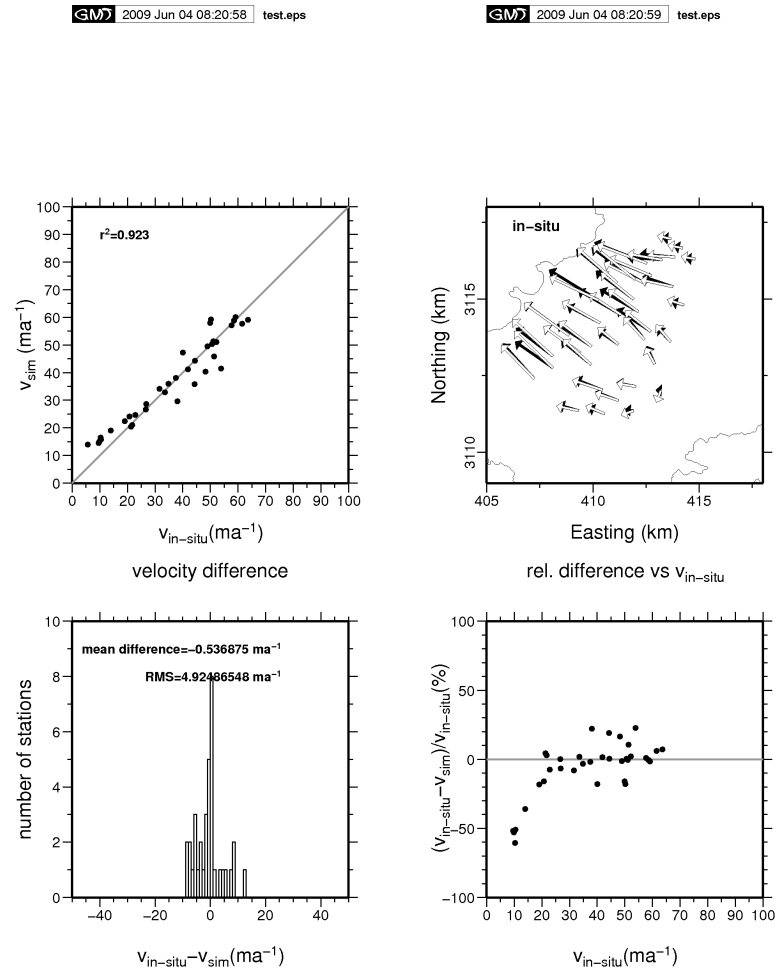


Rohsimulationen' -> Endprodukt



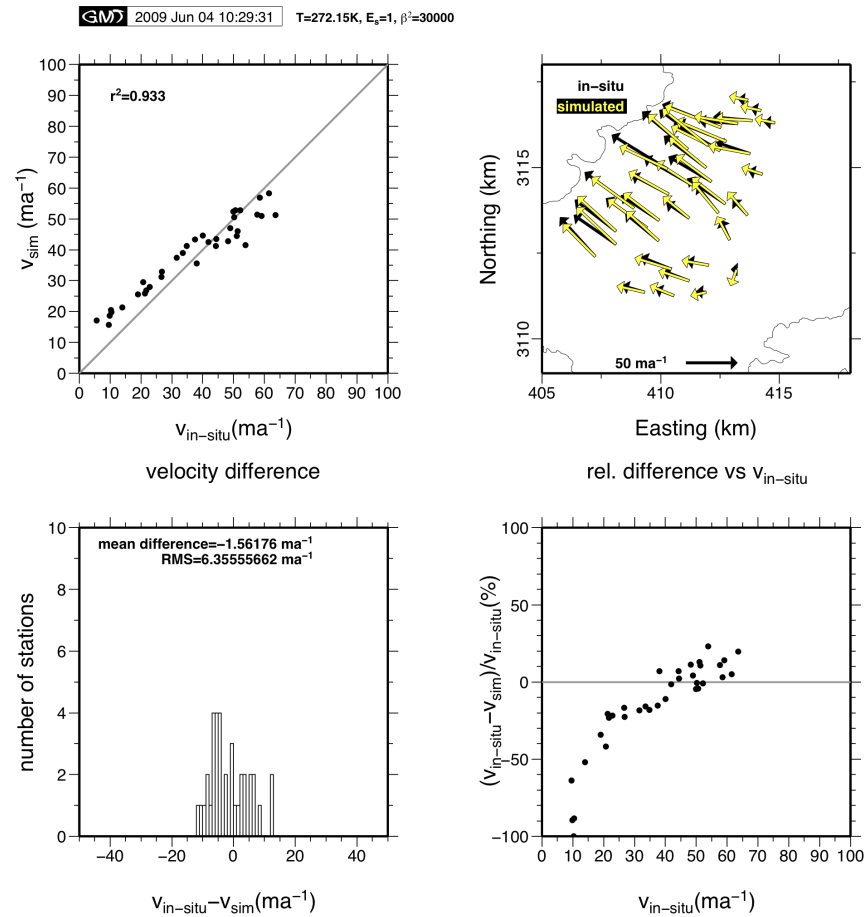
M.Rückamp, 2009

Rohsimulationen -> Endprodukt



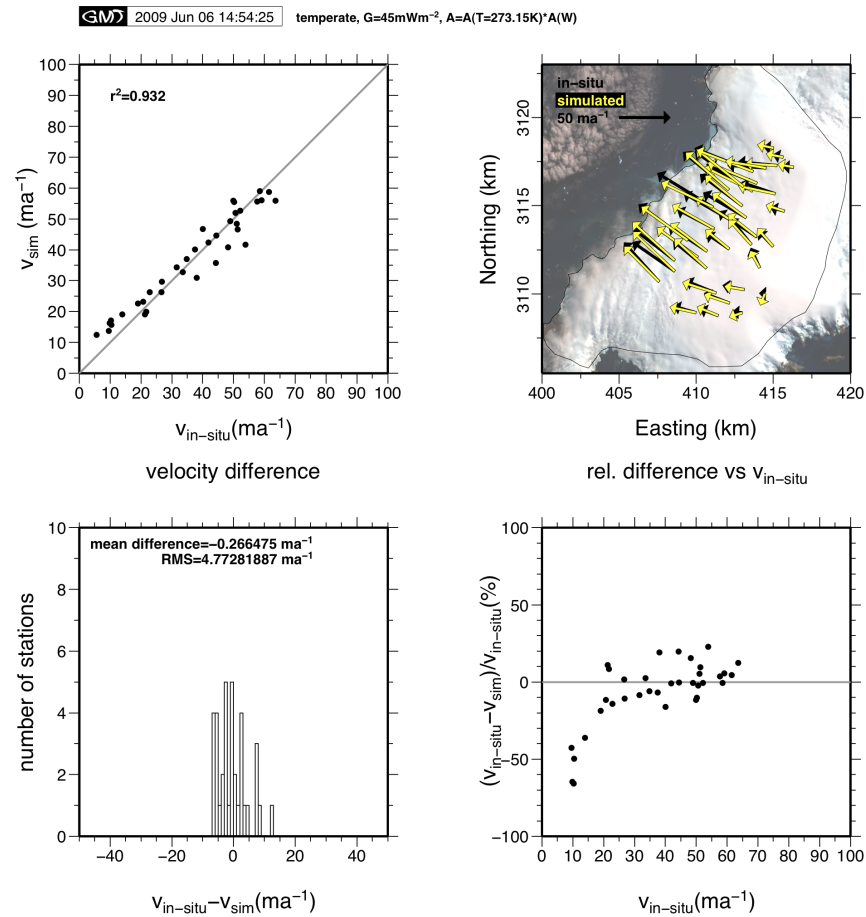
M.Rückamp, 2009

Rohsimulationen -> Endprodukt



M.Rückamp, 2009

Rohsimulationen -> Endprodukt



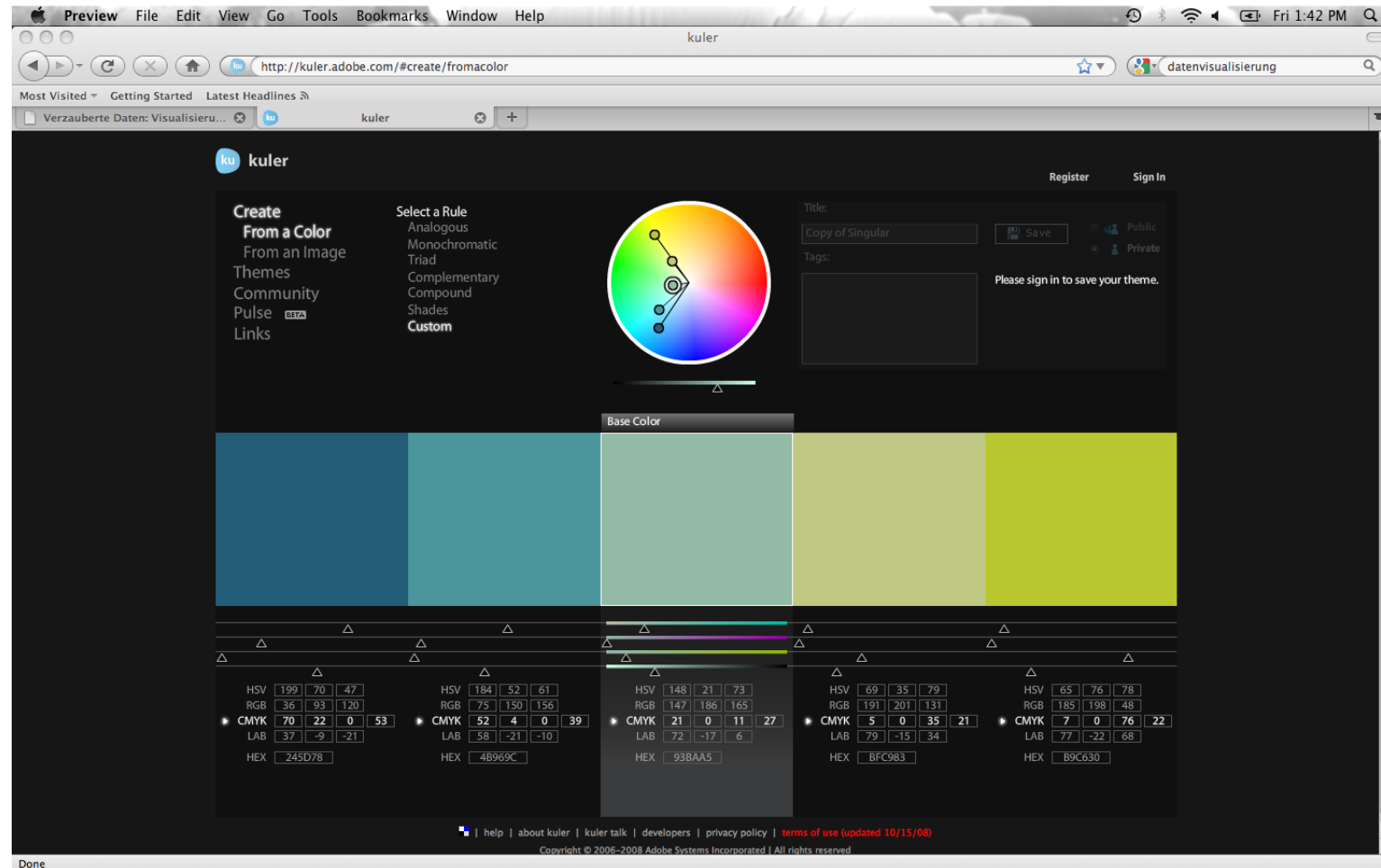
M.Rückamp, 2009

Farbwahl vs Farbqual

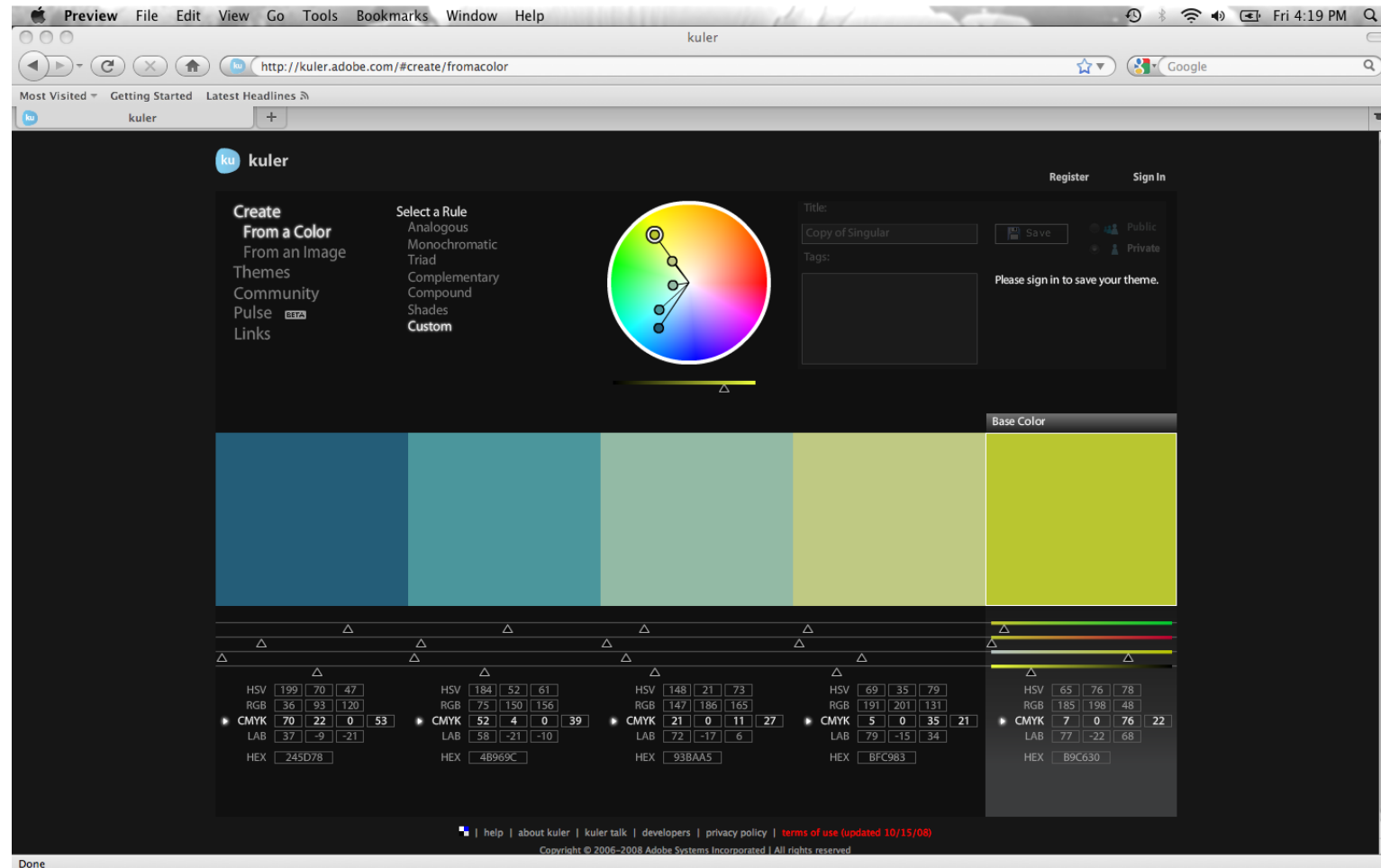
Farbwahl vs Farbqual

The screenshot shows a web browser window displaying the Kuler website. The browser's address bar shows the URL <http://kuler.adobe.com/#themes/rating?time=30>. The website header includes the Kuler logo, navigation links for 'Register' and 'Sign In', and a search bar. The main content area features a large color palette with five vertical bars in shades of blue, teal, green, and yellow. Below the palette, there is a list of themes, each with a small color swatch and a star rating. The theme 'Singular' by 'mgine' is highlighted, showing its creation and editing dates, a rating of 3.67 (5 votes), and a theme link. A 'Comments' section for 'Singular' shows four user comments with their respective color swatches. On the right side, there is a 'News & Features' section with text about 'Community Pulse' and 'Kuler and Creative Suite'. The footer contains links for 'help', 'about kuler', 'kuler talk', 'developers', 'privacy policy', and 'terms of use (updated 10/15/08)', along with a copyright notice for 2006-2008 Adobe Systems Incorporated.

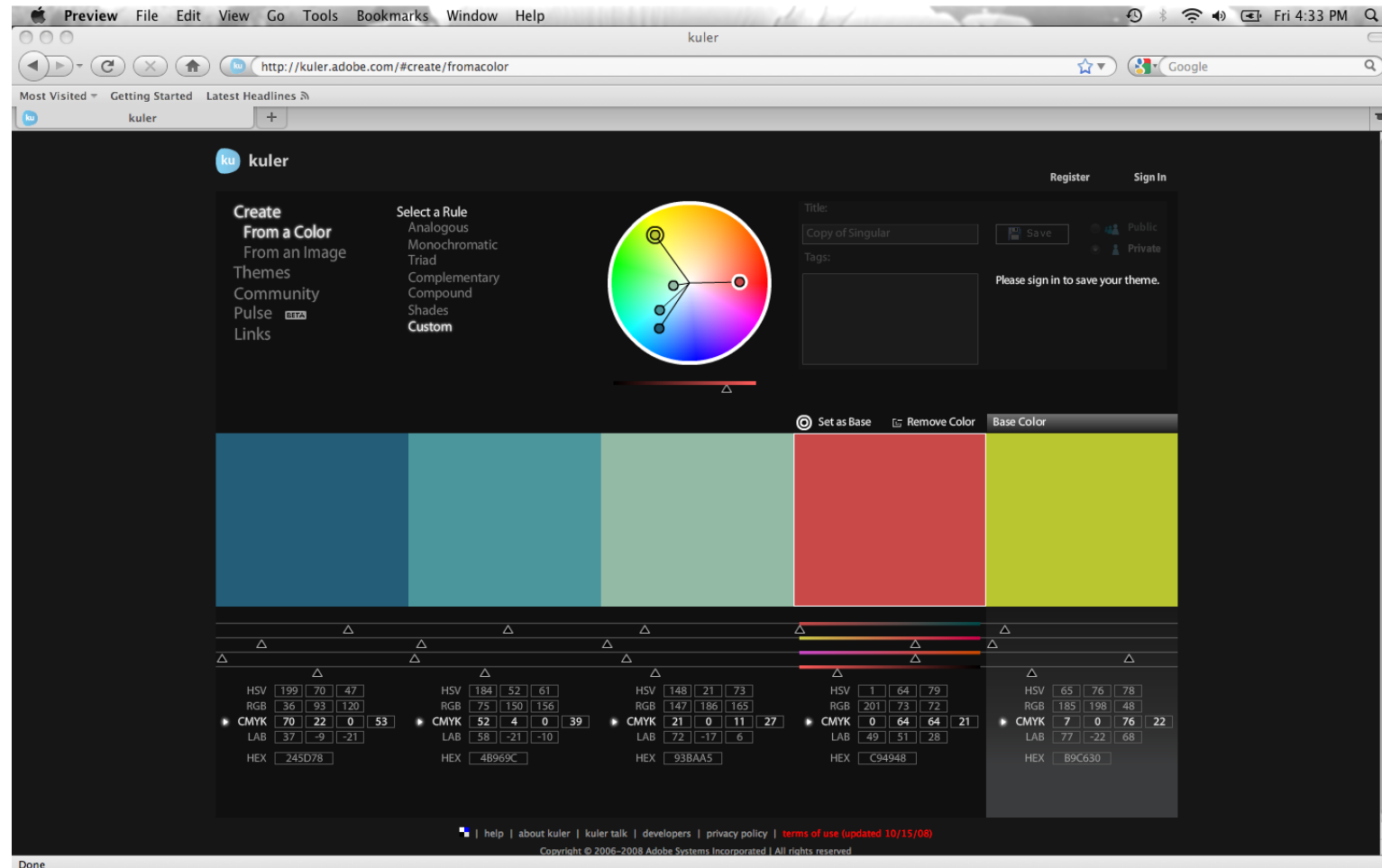
Farbwahl vs Farbqual



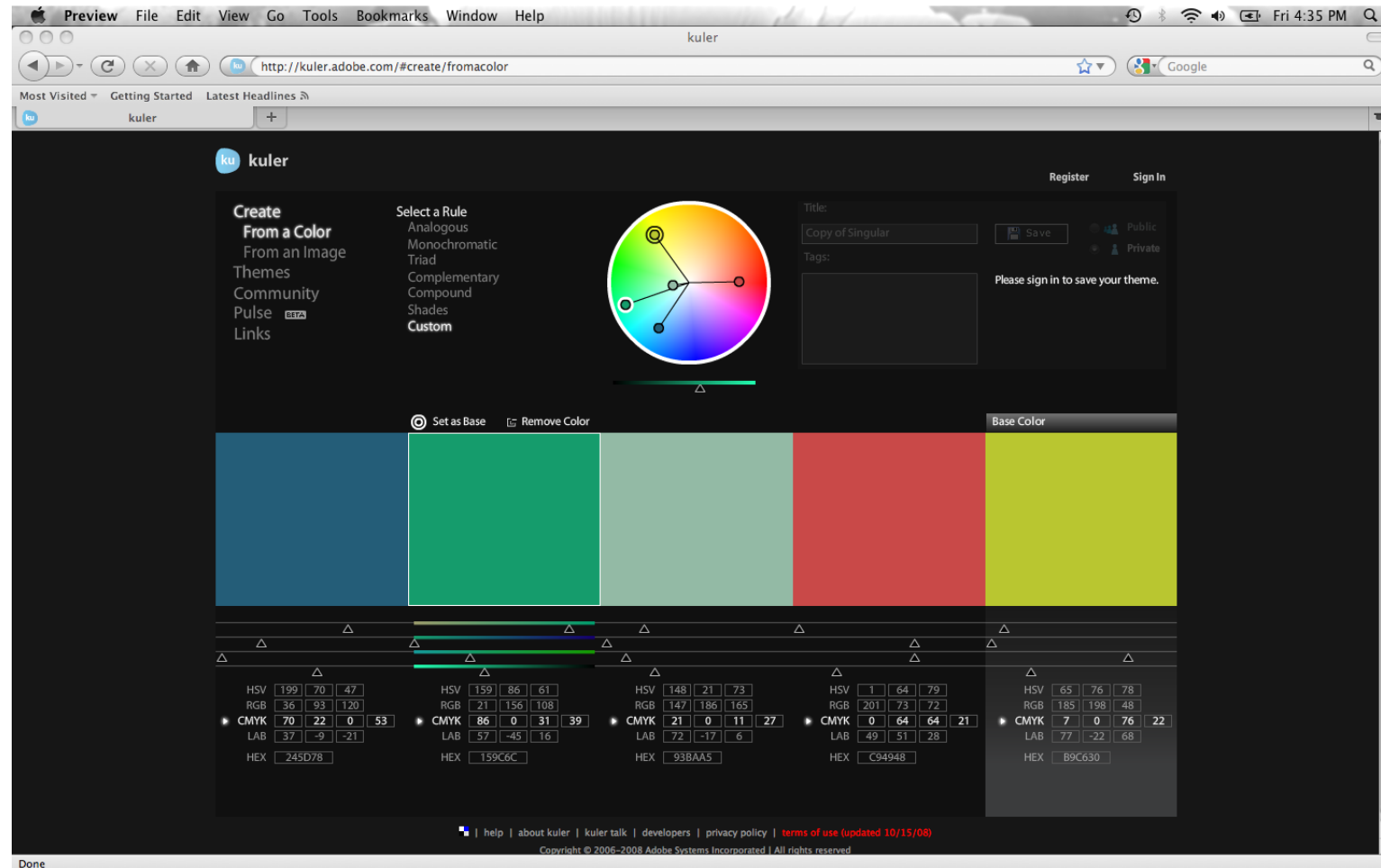
Farbwahl vs Farbqual



Farbwahl vs Farbqual



Farbwahl vs Farbqual



Farbwahl vs Farbqual

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cpt-city up

An archive of colour gradients

For cartography, technical illustration and design. The archive supports several **formats** and is organised by author.

- Colour schemes by Cynthia Brewer
- Selected five-colour palettes from COLOURlovers
- Subtle gradients from Crumblingwalls
- Palettes for positive functions by Duncan Agnew
- Gradients by Diane Simoni
- A DEM palette by Erika Mackay
- Toning samples by Eric R. Jeschke
- Themed art gradients by ElvenSword
- Selected legends from the European Soil Database
- Vista login button gradients by Fused Graphics
- The DEM palettes from drawmap, by Fred M. Erickson
- GIMP gradients
- Palettes from the graphics packages GIST and Yorick
- Generic Mapping Tools palettes
- Two-colour glossy gradients from GoSquared
- GRASS colour ramps
- Colour tables from the h5utils package
- Spectral gradients by Hult
- Gradients by Ingerlise
- Technical gradients by J.J. Green
- The ShadeMax palettes by Jim Mossman
- James McNames' monotonic luminance ColorSpiral
- KST colour tables
- Loadboy's gradients for graphic design
- Gradients by Michele Arnold
- Precipitation palettes by Mark J. Fenbers
- The NCDC's scheme for probability of a white Christmas

New Jersey elevation with the njdem100 legend

The NCDC's scheme for the probability of a white Christmas

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Farbwahl vs Farbqual

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cb

http://soliton.vm.bytemark.co.uk/pub/cpt-city/cb/index.html

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cb

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cpt-city | cb up

Cynthia Brewer

These colour schemes were designed by **Cynthia Brewer**, Associate Professor of Geography at the Pennsylvania State University.

- o sequential
- o diverging
- o qualitative

For further details on these schemes visit <http://colorbrewer.org/>.

Copyright is Apache like: See [details](#) and [XML record](#).

Validate [xhtml](#) [css](#)

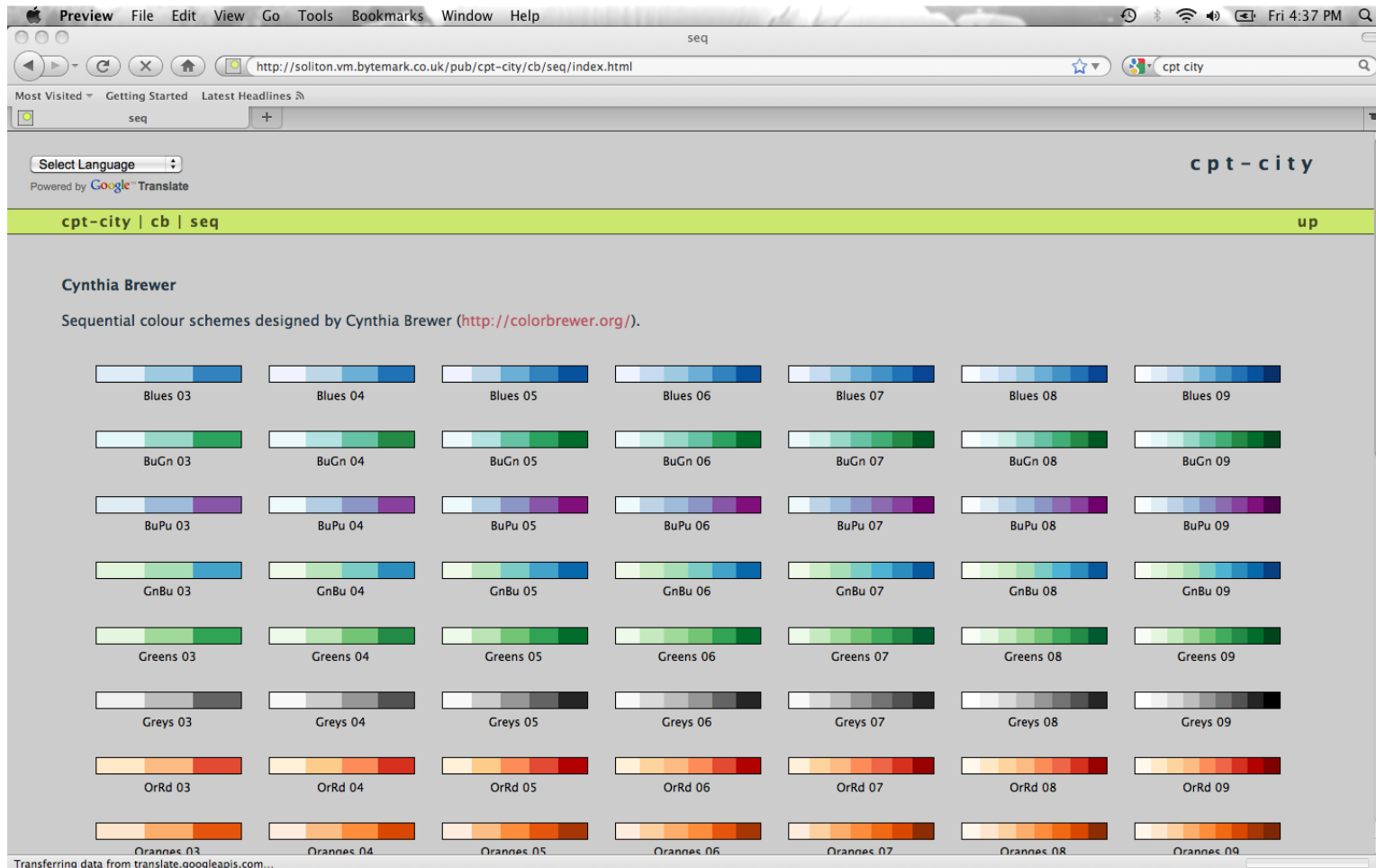
Generated by [album](#) from [Dave's MarginalHacks](#) on Sun Apr 18 19:46:32 2010

Thunderbird

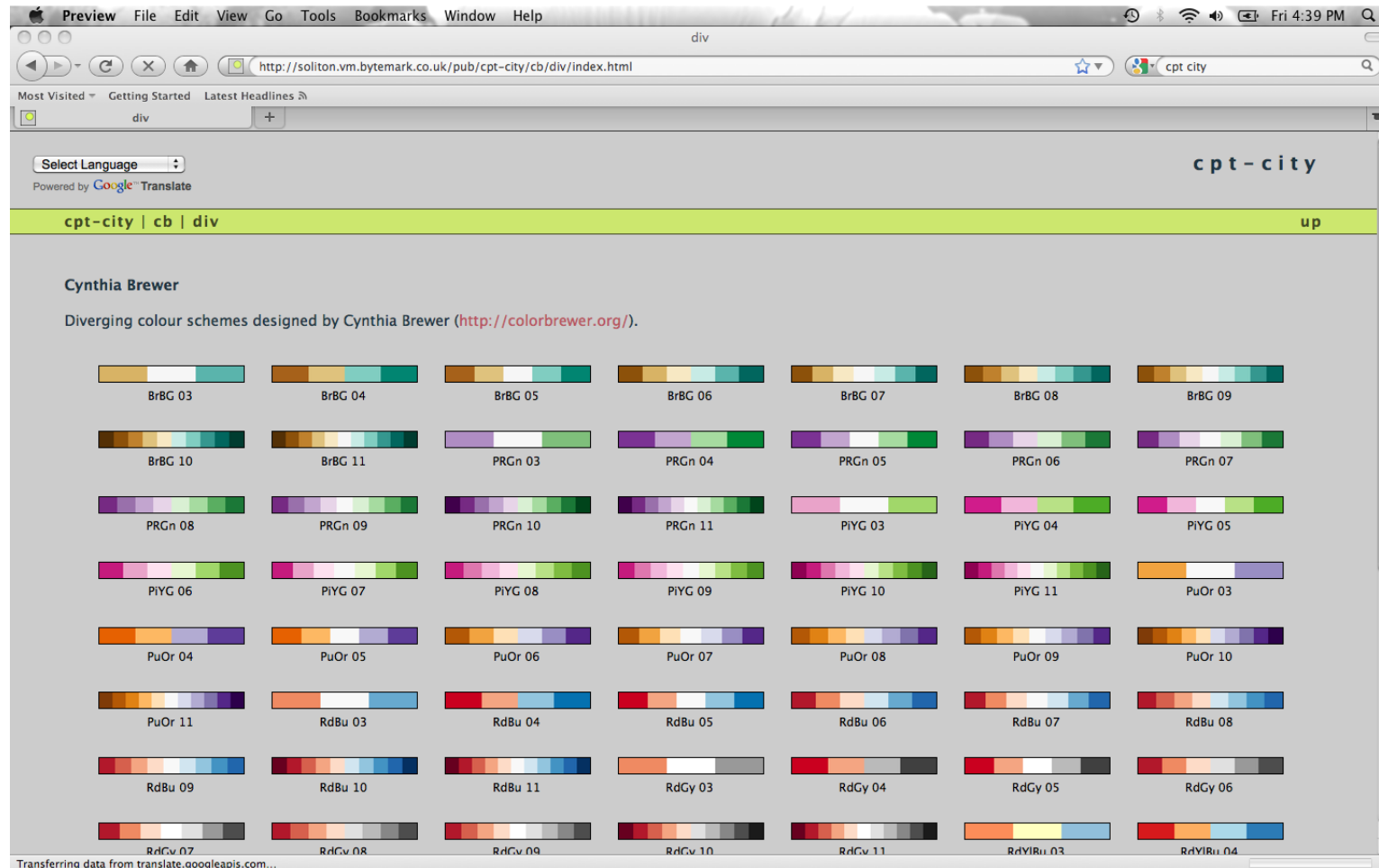
Map of US military veterans using Y1OrRd 06, from the [Census Atlas of the United States](#)

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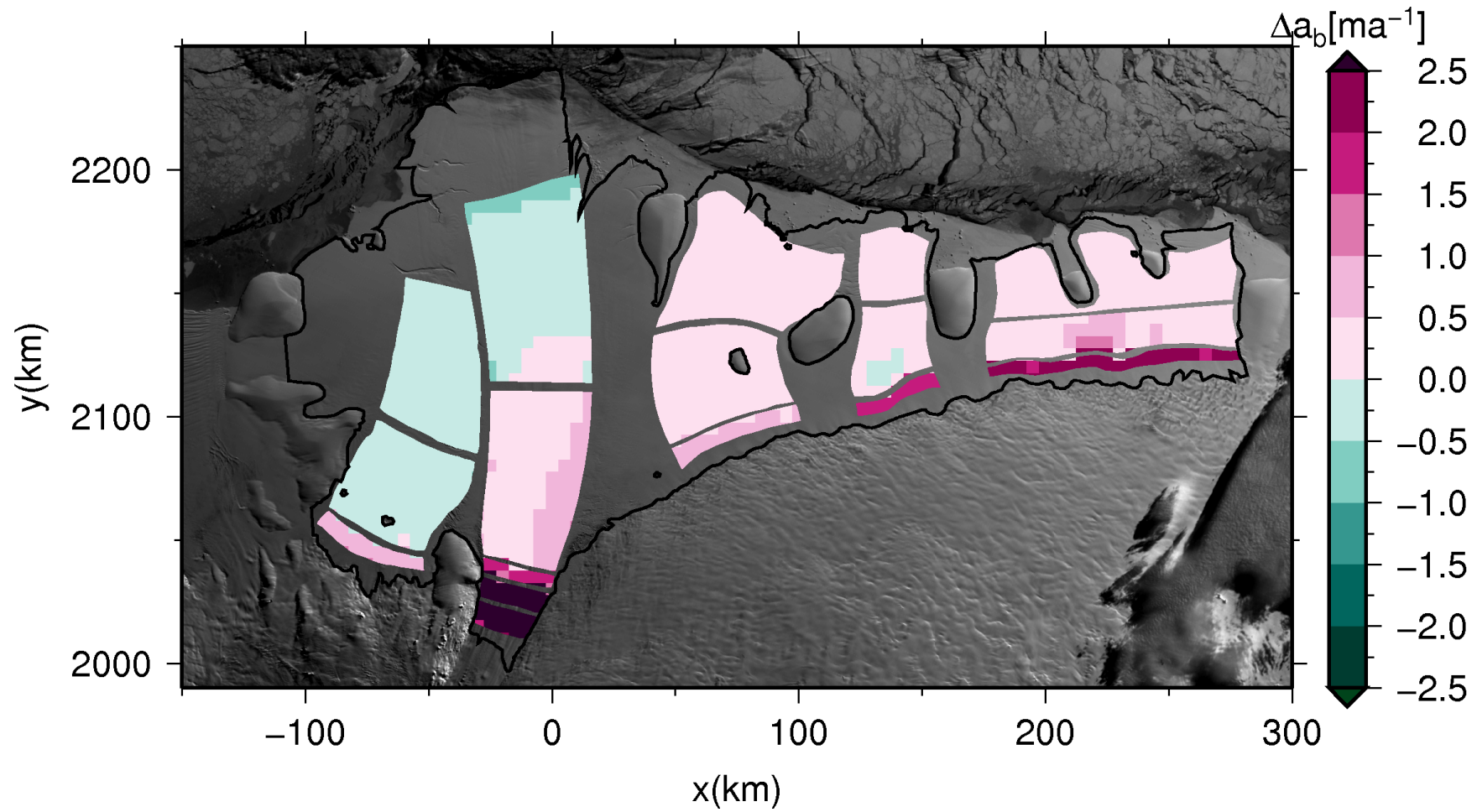
Farbwahl vs Farbqual



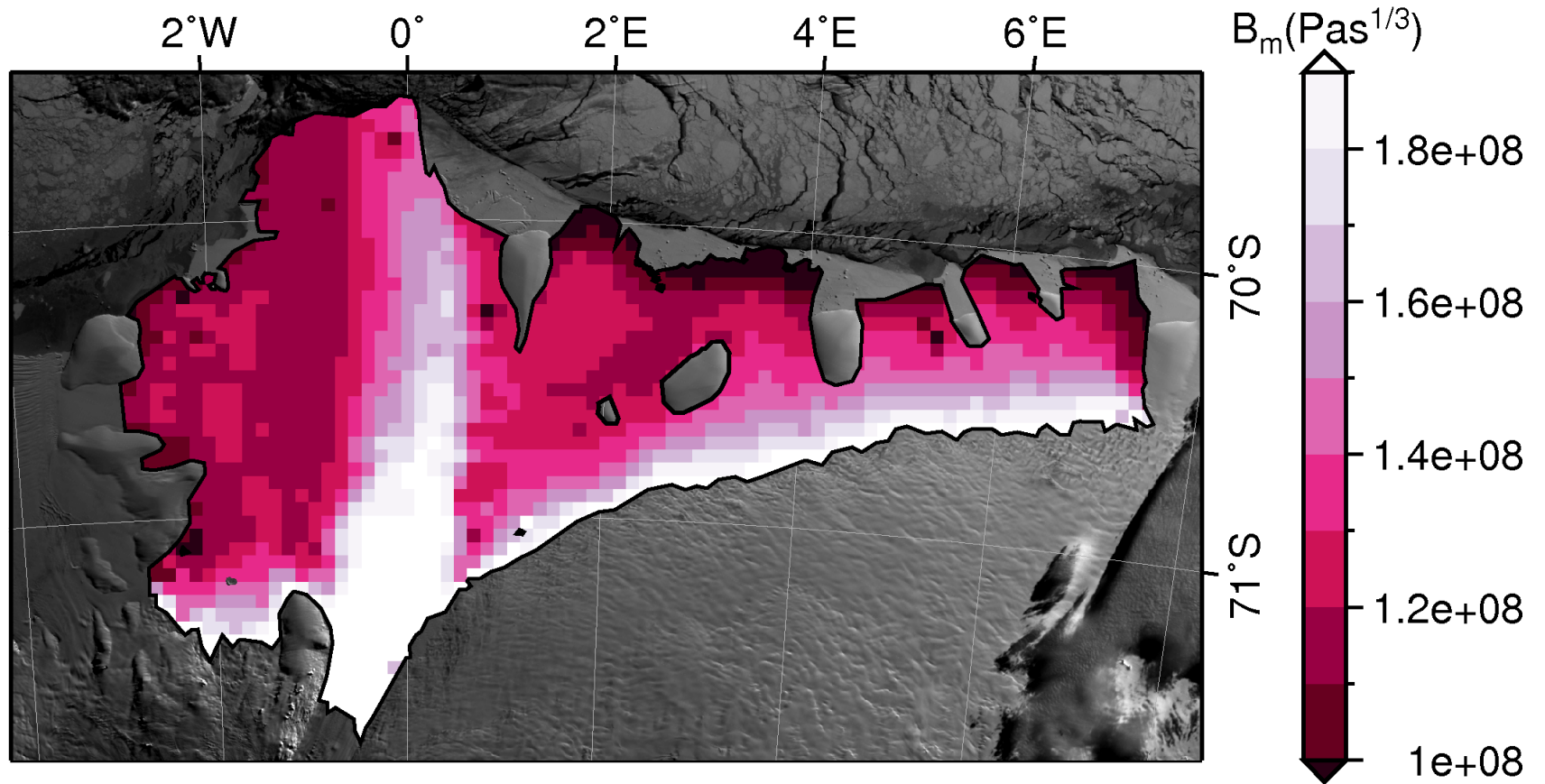
Farbwahl vs Farbqual



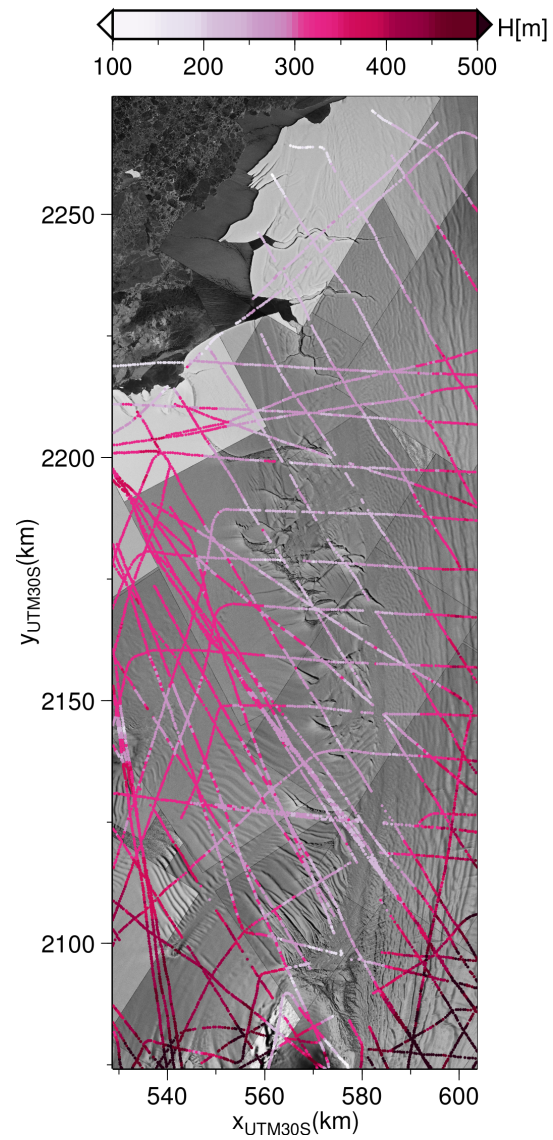
Farbwahl vs Farbqual



Farbwahl vs Farbqual



Farbwahl vs Farbqual



Vielen Dank für Ihre Aufmerksamkeit



Zentrum für Marine und
Atmosphärische Wissenschaften



Max-Planck-Institut
für Meteorologie



GKSS Forschungszentrum
Geesthacht



Deutsches Klimarechenzentrum