Expertise, achievements, expression of interest

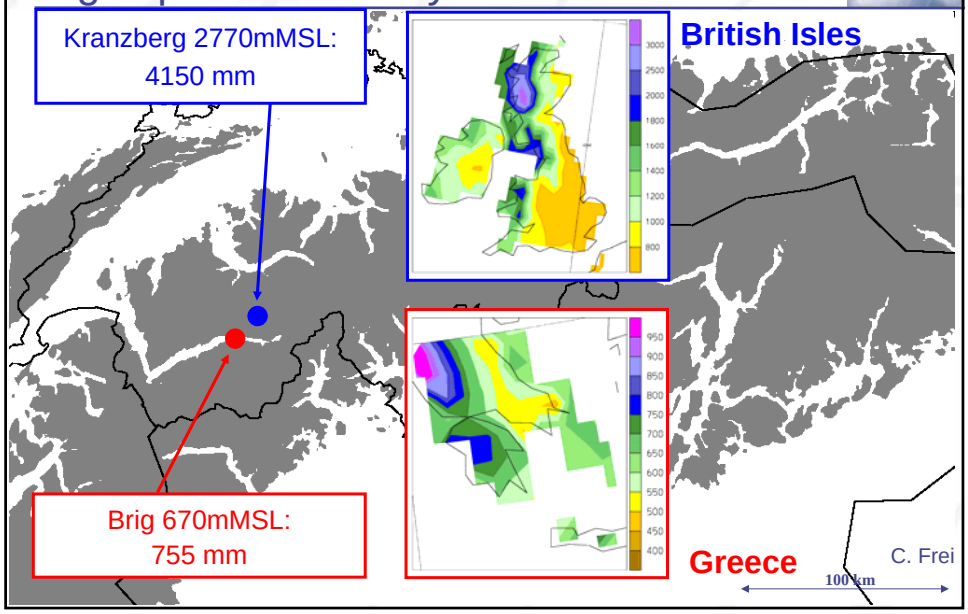
MeteoSwiss

- Alpine meteorology and climatology
- High quality time series
- ERA-40
- Validation

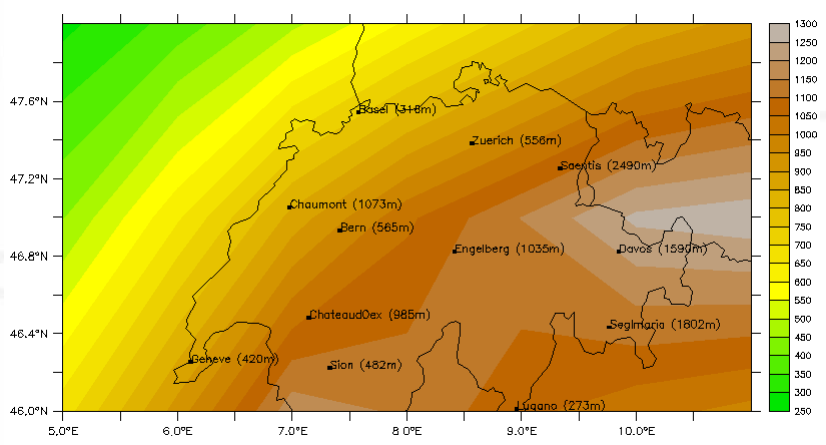
Mark Liniger

MeteoSwiss

High spatial variability



ERA-40 orography



Kunz et al., in prep.

MeteoSwiss

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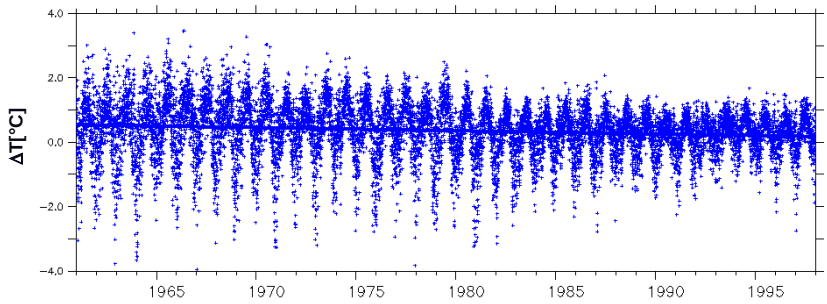
Daily temperature: ERA-40 – Swiss stations

blue: homogenised data **<ΔT>=0.4°C**



Begert et al., 2005
Kunz et al., in prep.

MeteoSwiss

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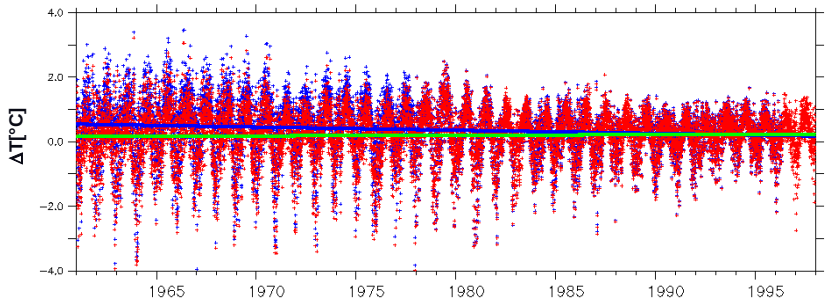
Daily temperature: ERA-40 – Swiss stations

blue: homogenised data **<ΔT>=0.4°C**
red: non homogenised data **<ΔT>=0.2°C**



Begert et al., 2005
Kunz et al., in prep.

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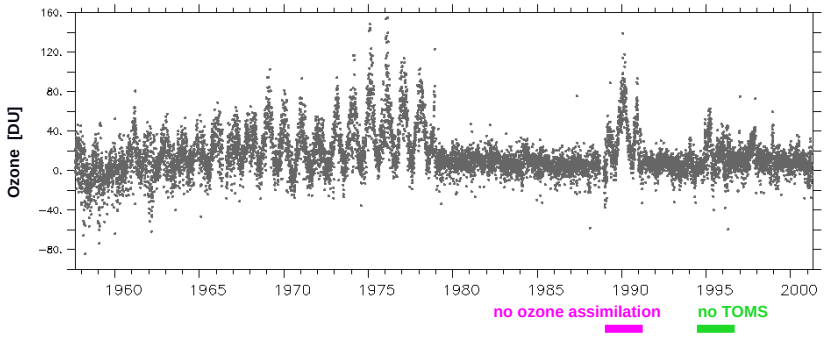
daily total ozone observations

Ozone difference: ERA40 - Arosa



Kunz et al., in prep.

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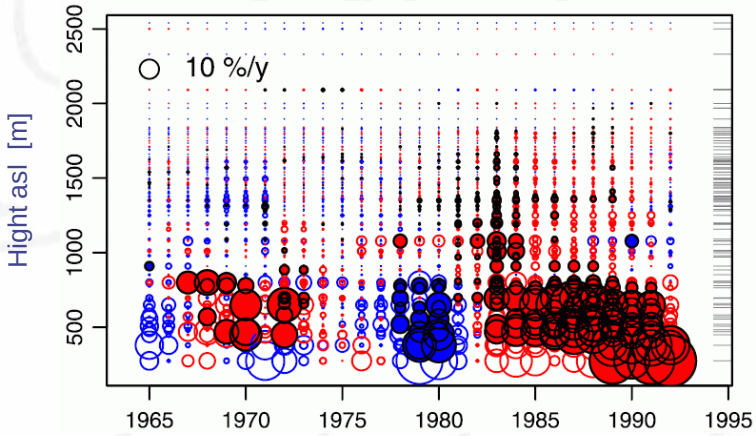
Swiss snow data network (110 stations)

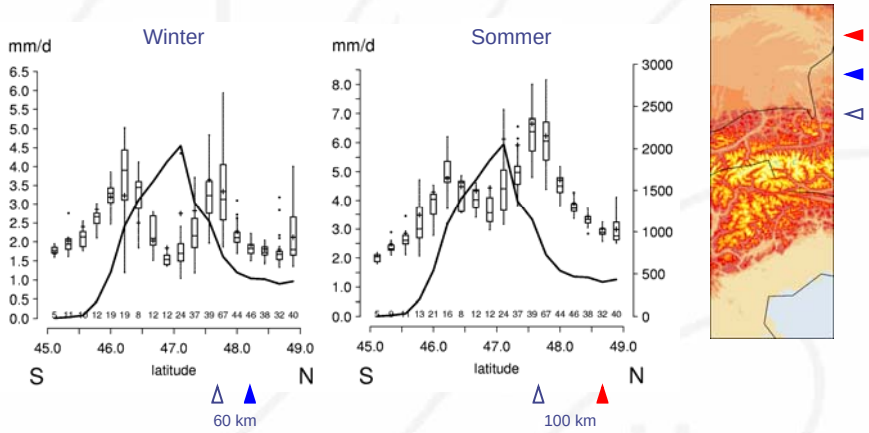
Snow days (DJF) 1958 - 1999
15 years running trend



Scherrer *et al.* (2004)

MeteoSwiss

Alpine cross-section



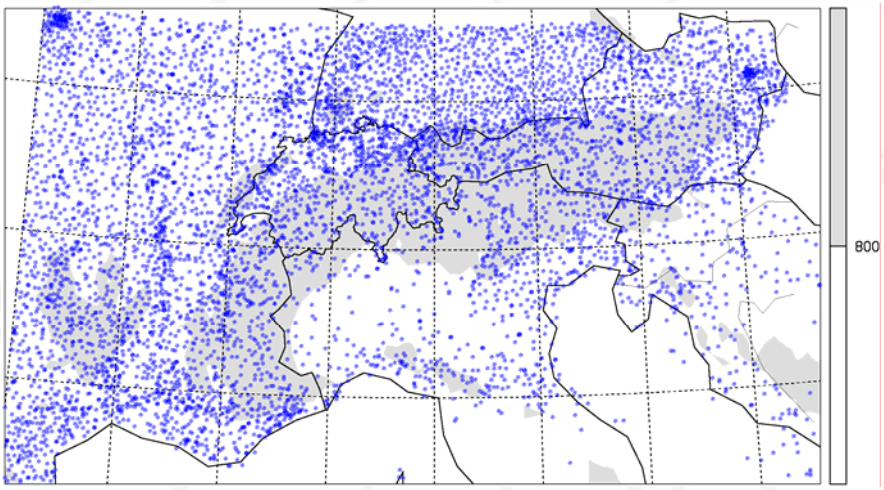
Saisonale Niederschlagsmittel entlang eines N-S Querschnitts durch die Alpen. Boxplots stellen die Verteilung der Stationsmittel aus 25 km breiten Streifen entlang dem Hauptkamm dar (Median, Interquartil, gesamter Bereich und Ausreisser).

C. Frei

MeteoSwiss

IACETH

Alpine precipitation dataset



5800 rain-gauges, 260 totalizors, 1971-1990
Frei & Schär, 1998

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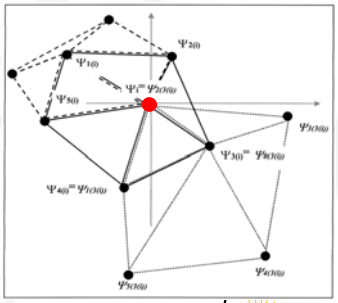
WP5.1 daily high-resolution gridded observational dataset for Europe

ENSEMBLES

- KNMI, UEA, UOXFDC, METEOSWISS
- Goal: European station density 17‘000 stations (dx = 25km) currently ~1500
- MeteoSwiss:
  Objective, automatic quality checking and approaches for homogenization
  - VERAQC (Steinacker et al., 2000)
  - Homogeneity tests
- MeteoSwiss supports and intends to be involved in EUROGRID (ECSN)



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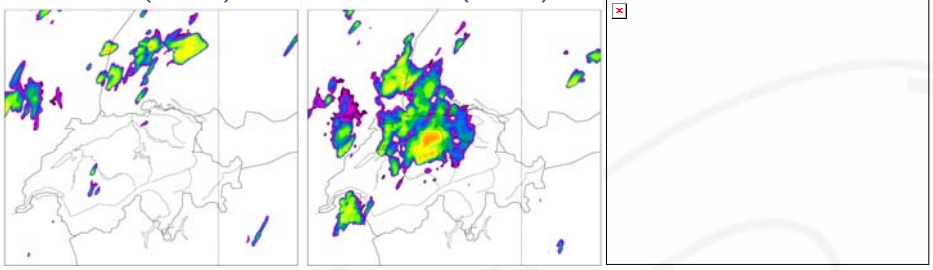
Assimilation of radar data

Analysis mode

aLMo (2.2km) aLMo (2.2km) radar



without radar (+6h) with radar (+6h)

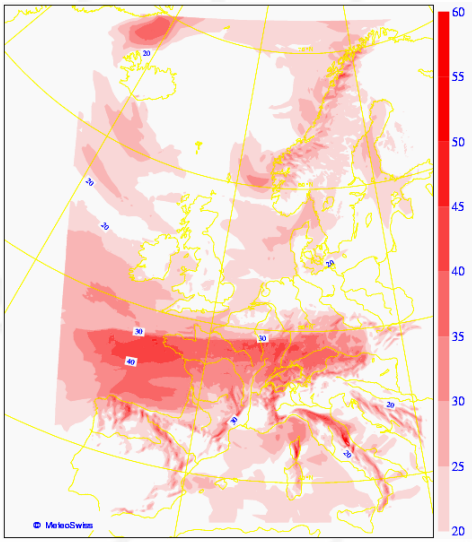
8.5.2003, 17-18UTC

Leuenberger, 2005

MeteoSwiss

Collaboration with industry

PartnerRe



Winterstorm „Lothar“

max. windgust [m/s]
26.12.99 00 UTC –18 UTC

ERA-40
-> 28 km (LM)
-> 7 km (LM)

>100 European winterstorms

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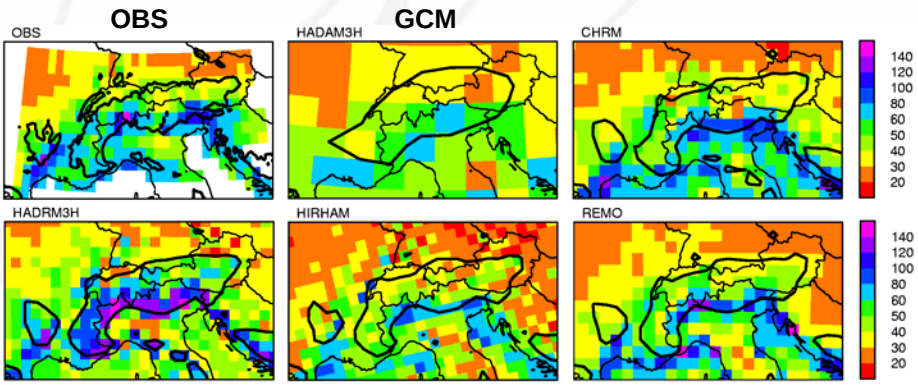
Dynamical downscaling at ETH
Intercomparison of RCMs for heavy precip

IACETH

5-year extreme value of daily precip (mm, fall)



AMIP-type AGCMs (HadAM3H) control runs (61-90)

Frei et al. (JGR) 2005
Schär et al., ETH Zurich

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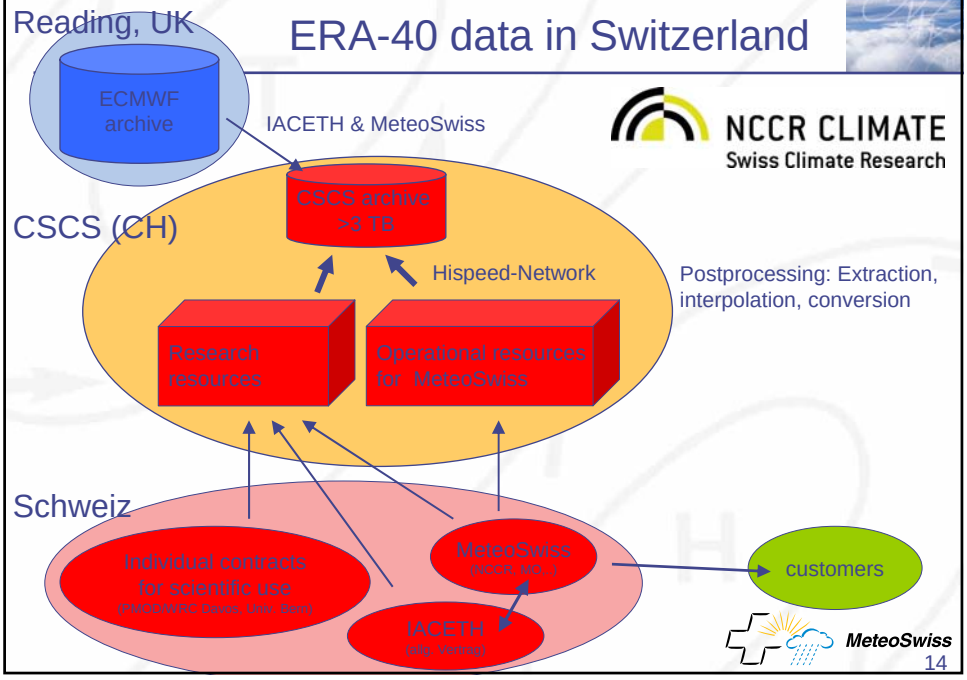
ERA-40 data in Switzerland



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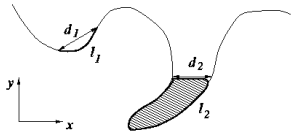
ERA-40 at ETH
Upper level signature of heavy precipitation

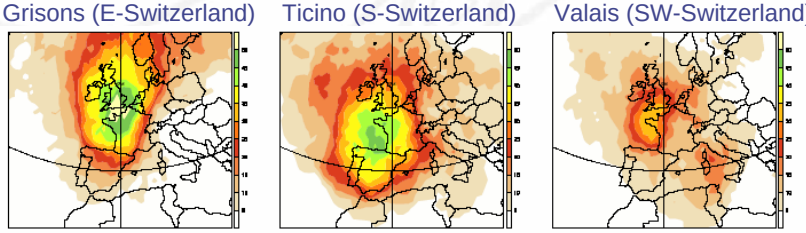
IAC ETH



objective PV-streamer identification ERA40

Martius et al., *Int. J. Clim*, accepted,
Schwierz, Davies et al., ETH Zurich

Grisons (E-Switzerland) Ticino (S-Switzerland) Valais (SW-Switzerland)



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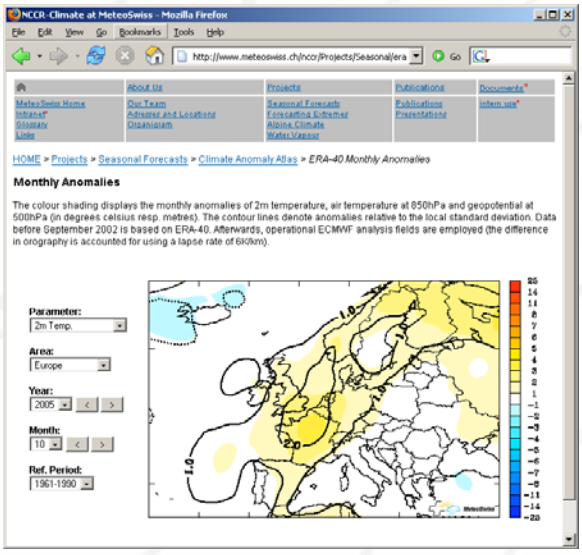
ERA-40 climate anomalies



- Interactive atlas of climate anomalies
- www.meteoswiss.ch/nccr

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Conclusions

- MeteoSwiss is interested in participating EURRA
- Focus on
  - Alpine specific validation
  - (re)insurance relevant climate risk analysis
- Other contributions possible
- Real time update desirable

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