



Schweizerische Eidgenossenschaft
Confédération suisse
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Swiss Confederation

Federal Department of Home Affairs FDHA
Federal Office of Meteorology and Climatology MeteoSwiss

From AI / QC Breakthroughs to Reliable Weather Forecasts

A perspective from MeteoSwiss

ICES Workshop, 01.10.2026, Geneva

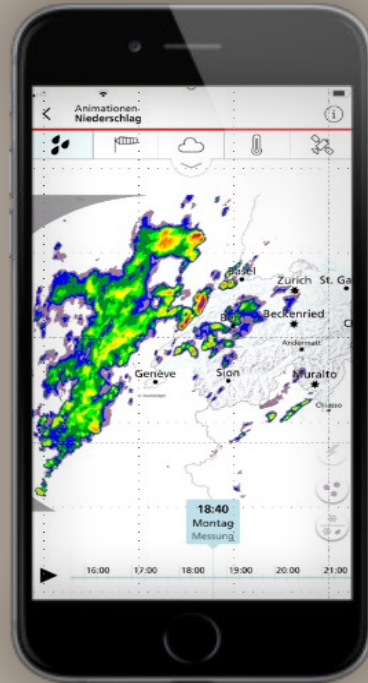
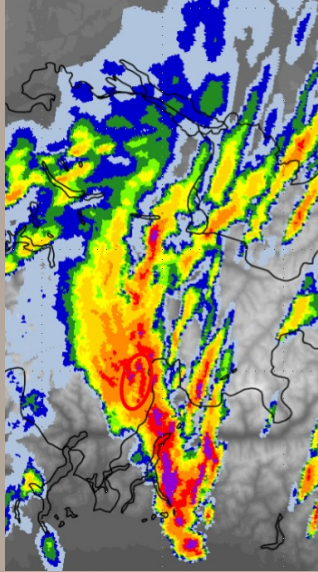
Oliver Fuhrer

Our mission

MeteoSwiss is Switzerland's national weather service. We record and forecast the weather and climate, thus generating benefits for society, business and the environment in the short and long term.

From opportunities and research... to societal benefit and saving lives

Rainfall and flash floods in Misox 21. Juni 2024: 8 fatalities



20240622, Lostallo, Samuel Golay

Innovation

Product

Impact



History – The GPU opportunity

Since 2016 MeteoSwiss' operational forecast is running on a GPU-based HPC platform

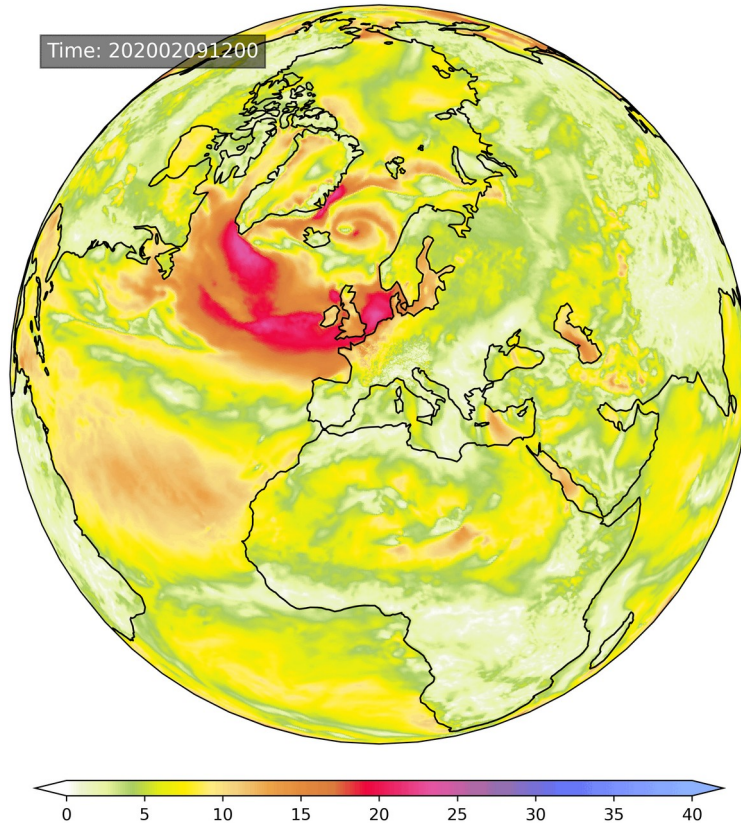
2010



Today



Varda – a data-driven forecasting model





From hype to reality...

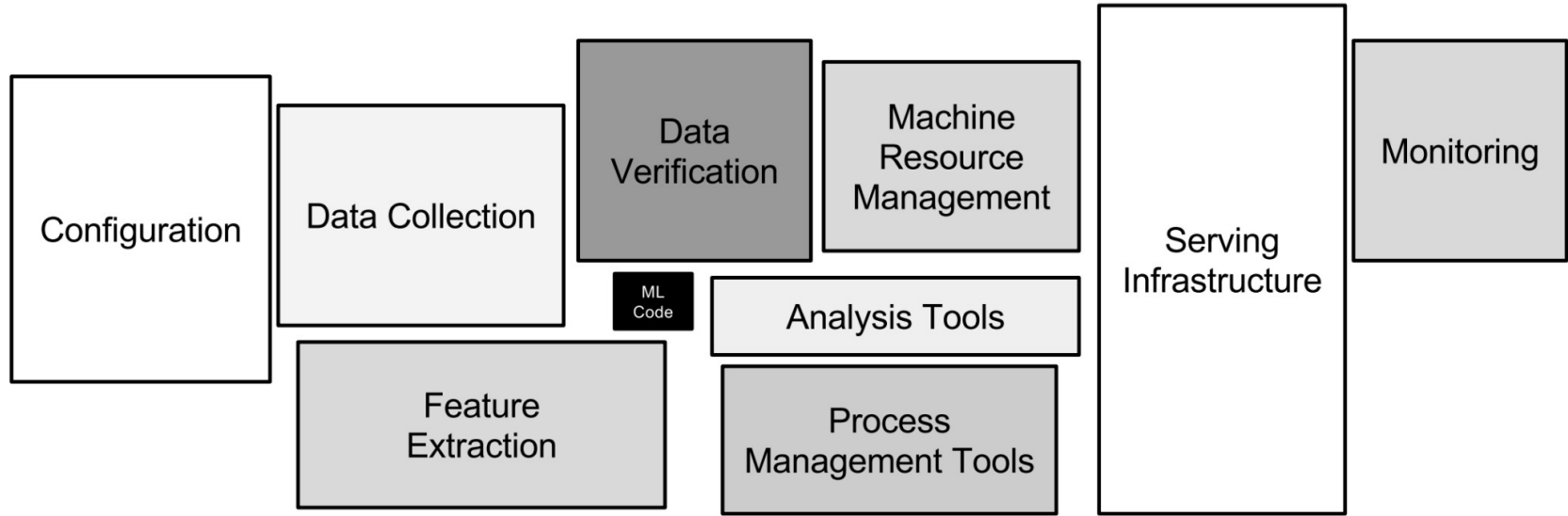


Figure from Sculley et al., *Hidden Technical Debt in Machine Learning Systems*, 2015.



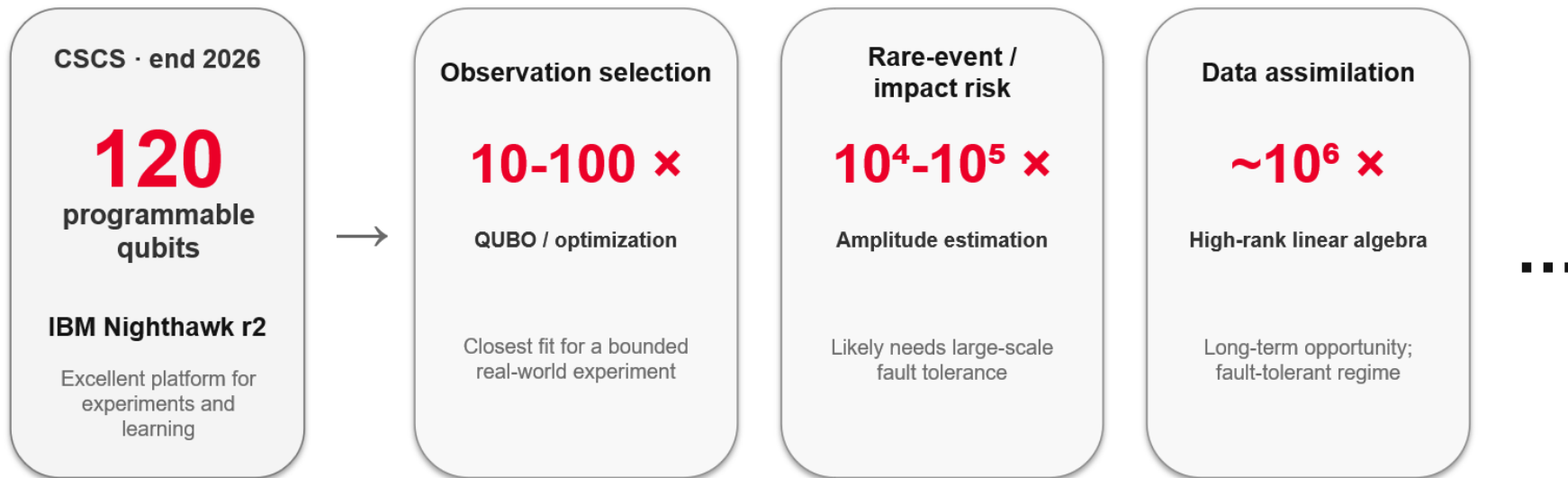
Evidence for operational adoption

Test	What would convince us?
Meteorological value	Useful gain against a strong baseline
Robustness	Performance across regimes and rare events
Complete workflow	Benefit after data preparation, transfers and readout
Operational readiness	Predictable latency, recovery and maintainability

AI and QC face the same service requirements



QC – start learning before it is ready



What we can do now

Formulate real use cases; benchmark strong classical baselines; build HPC–QC workflows; learn bottlenecks

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MeteoSwiss

Operation Center 1
CH-8058 Zurich-Airport
T +41 58 460 91 11
www.meteoswiss.ch

MeteoSvizzera

Via ai Monti 146
CH-6605 Locarno-Monti
T +41 58 460 92 22
www.meteosvizzera.ch

MétéoSuisse

7bis, av. de la Paix
CH-1211 Genève 2
T +41 58 460 98 88
www.meteosuisse.ch

MétéoSuisse

Chemin de l'Aérologie
CH-1530 Payerne
T +41 58 460 94 44
www.meteosuisse.ch

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