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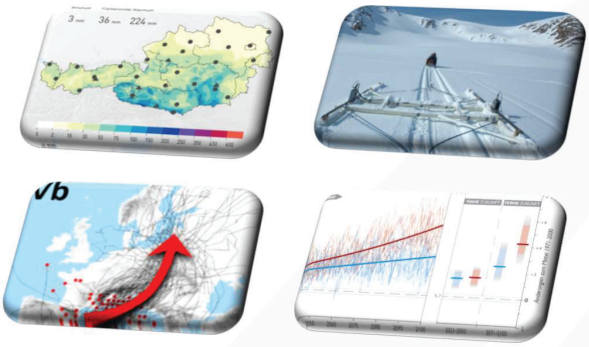
ENGLISH only

28th OSCE Economic and Environmental Forum
Second Preparatory Meeting
Session 4

Mr. Gerhard Wotawa, ZAMG, Austria

Disaster Risk Reduction (DRR)

Multi-Hazard Early Warning Systems and access to information



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Gerhard Wotawa

DRR: Natural hazards and NATECH events

- Natural hazards (weather-related, geophysical, health-related) are the biggest threat to human safety and wellbeing
- They can be followed by associated technical failures – **NATECH** events
- In the field of Disaster Risk Reduction (DRR), the **lack of coping capacity** is the feature that needs to be urgently addressed at national and international levels (corruption, poverty and inequality increase disaster risks)

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Lack of coping capacity

- Institutional element
  - DRR (Hyogo Framework for Action, Sendai Framework)
  - Governance
- Infrastructure element
  - Communication
  - Physical infrastructure
  - Access to health system
- Interoperability element
  - Agreed data model and vocabulary
  - Cross-border event identifier

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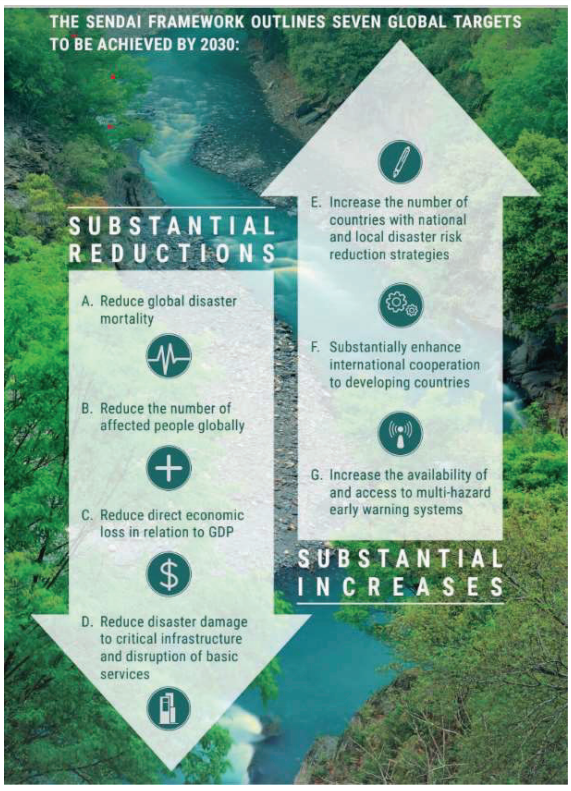
Sendai Framework



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DRR – our technical perspective

- Disaster preparedness requires **early warning information** from **mandated technical organizations** like National Meteorological Services, Seismological Services, Geological Services, Environmental Protection Agencies,…

  - **Multi-Hazard Approach**: consider cascades of events; bring together experts from different fields; seamless linking of alerting systems

  - **Impact orientation**: not the physical strength of the phenomenon is most important, but where and when it strikes (coping capacity, exposure, important infrastructure affected,…)

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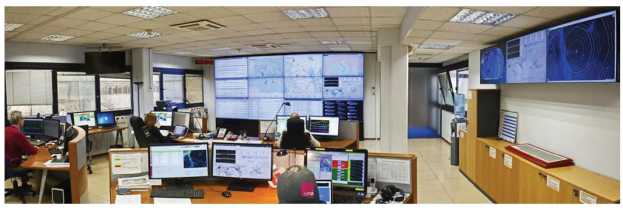
ARISTOTLE – Multi-hazard advice for Europe

ARISTOTLE –ENHSP(*) builds upon member states national expertise to improve EC coordination and support the EU-CPM

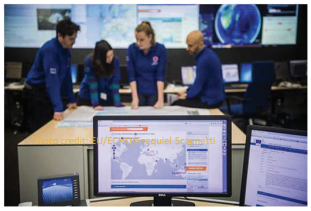
National Operational Centers



ARISTOTLE – expert advice

ERCC

European Commission



(*) European Multi-Hazard Scientific Partnership

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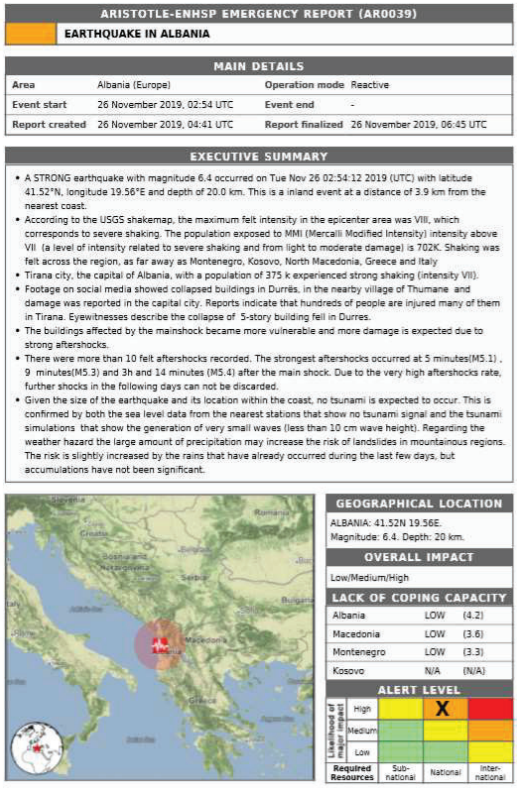
ARISTOTLE Hazard Reports

- Upon request from ERCC, **emergency reports** are issued within 3 hours
- System is **multi-hazard** and impact-oriented
- Provides **expert advice** to support international search and rescue operations
- 24x7 operational rotation system



ARISTOTLE-ENHSP EMERGENCY REPORT (AR0039)

EARTHQUAKE IN ALBANIA

MAIN DETAILS

Area	Albania (Europe)	Operation mode	Reactive
Event start	26 November 2019, 02:54 UTC	Event end	-
Report created	26 November 2019, 04:41 UTC	Report finalized	26 November 2019, 06:45 UTC

EXECUTIVE SUMMARY

- A STRONG earthquake with magnitude 6.4 occurred on Tue Nov 26 02:54:12 2019 (UTC) with latitude 41.52°N, longitude 19.56°E and depth of 20.0 km. This is a inland event at a distance of 3.9 km from the nearest coast.
- According to the USGS shakemap, the maximum felt intensity in the epicenter area was VIII, which corresponds to severe shaking. The population exposed to MMI (Mercalli Modified Intensity) intensity above VII (a level of intensity related to severe shaking and from light to moderate damage) is 702K. Shaking was felt across the region, as far away as Montenegro, Kosovo, North Macedonia, Greece and Italy
- Tirana city, the capital of Albania, with a population of 375 k experienced strong shaking (intensity VII).
- Footage on social media showed collapsed buildings in Durrës, in the nearby village of Thumane and damage was reported in the capital city. Reports indicate that hundreds of people are injured many of them in Tirana. Eyewitnesses describe the collapse of 5-story building fell in Durres.
- The buildings affected by the mainshock became more vulnerable and more damage is expected due to strong aftershocks.
- There were more than 10 felt aftershocks recorded. The strongest aftershocks occurred at 5 minutes(M5.1) , 9 minutes(M5.3) and 3h and 14 minutes (M5.4) after the main shock. Due to the very high aftershocks rate, further shocks in the following days can not be discarded.
- Given the size of the earthquake and its location within the coast, no tsunami is expected to occur. This is confirmed by both the sea level data from the nearest stations that show no tsunami signal and the tsunami simulations that show the generation of very small waves (less than 10 cm wave height). Regarding the weather hazard the large amount of precipitation may increase the risk of landslides in mountainous regions. The risk is slightly increased by the rains that have already occurred during the last few days, but accumulations have not been significant.

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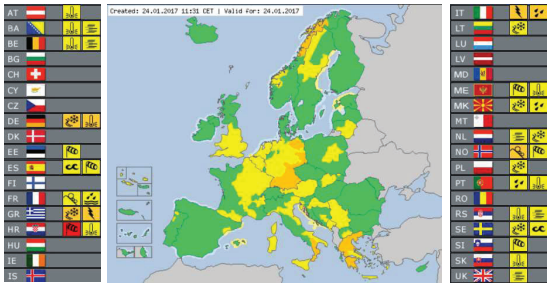
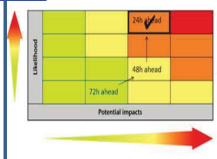
METEOALARM System – Alerting Europe for severe weather

What is Meteoalarm?

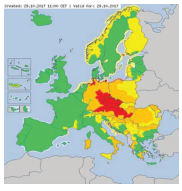


An impact-oriented, common framework to aggregate, display and make available meteorological and hydrological warnings of NMSs in an easy and understandable way to the general public and to European (re)users operated in the EUMETNET framework

Concepts

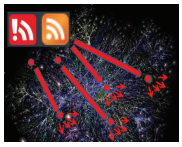


UNISDR Sendai Framework conformal regional description of expected impact and a clear advice what to do



Warning decision on a national basis

Added common value through consistent warning philosophy



Dissemination of warnings to (re)users via RSS and CAP feeds, Alert hub

Meteoalarm 3 C's:
Content
Communication
Co-operation

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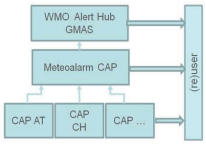
METEOALARM

Hard facts

- Integrated regional warning system in 33 languages
- Authoritative warning information from 37 NMHSs in WMO Region VI
- Operational since 2007
- Easy and understandable four level colour code
- 12 warning parameters
- Supports impact descriptions and instructions/advisories
- Considered as best practice by WMO, Worldbank
- Complete Relauch in 2020

Community building

Communication with civil protection on national and European basis (ERCC), integration of national partners



Joint development of guidelines and warning concepts

Enhance cross-border collaboration

Exchange of best-practices: „How is it done in your country“?

Yearly partner group meetings

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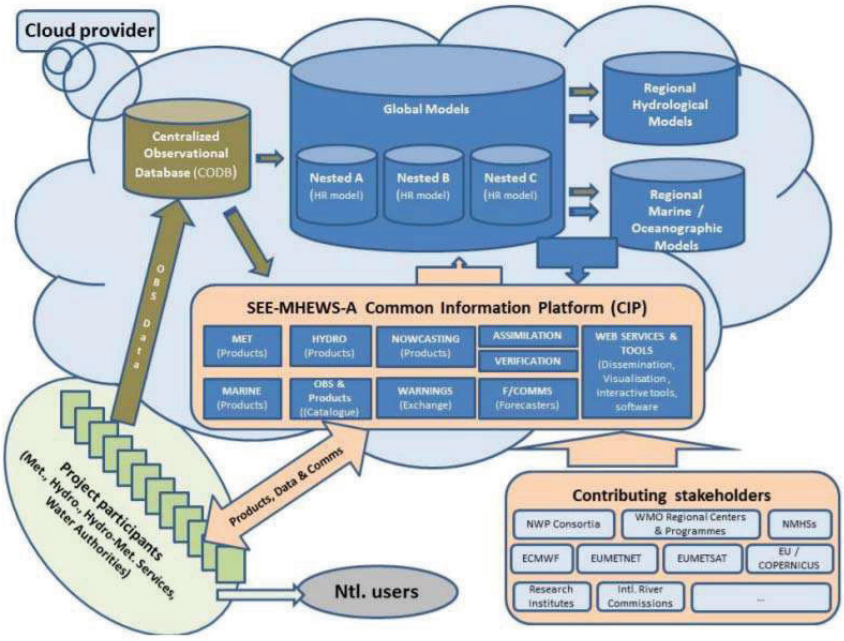
SEE-MHEWS-A Project

South-East European

Multi-Hazard Early

Warning Advisory System



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Austrian contribution to SEE-MWEWS-A: INCA Model

Combining numerical weather prediction models and nowcasting techniques to create the best possible automatic short-range forecast (up to 48h) at high temporal and spatial resolution.

A web-based, weather information system using state-of-the-art nowcasting methods

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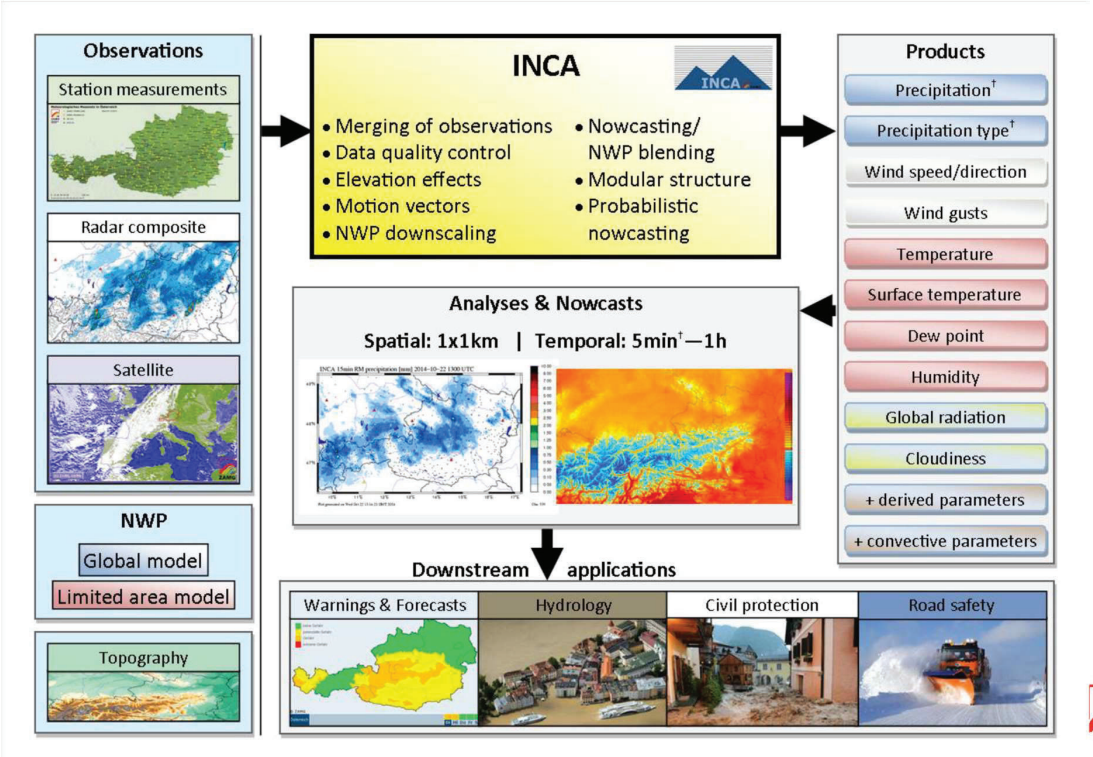
INCA Method: Merge together all information available



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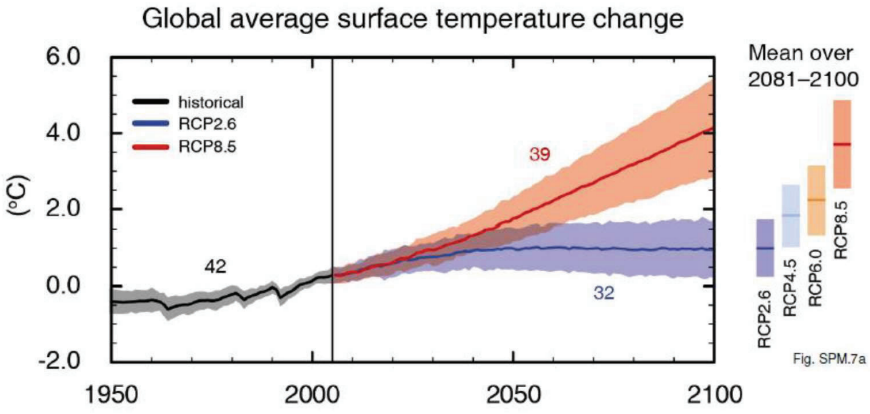
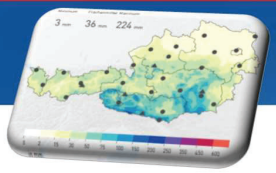
Global Warming – an international game changer

- Due to human activities, global temperature has increased by 1° in the last century
- Until 2100, a further increase by 0.5 ° - 1 ° is inevitable
- The temperature increase and its effects **varies regionally** – we expect significant increase in severe weather events like heat, drought and storm

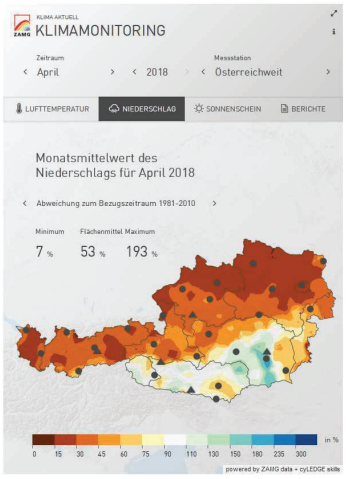


Climate monitoring

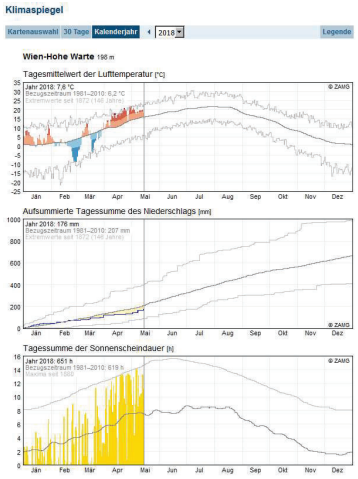


Operational climate monitoring

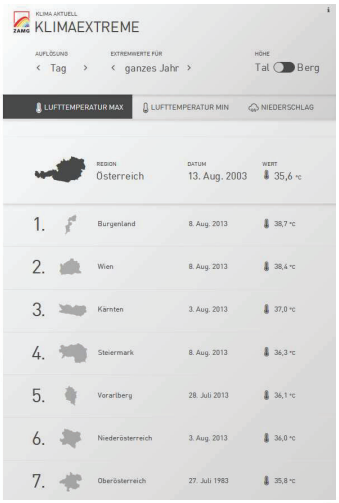
anomaly maps



anomaly time-series



climate extremes (ranking)

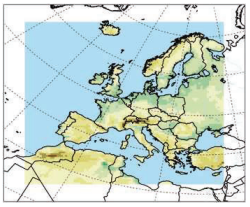


Climate Modelling, reference scenarios, mitigation

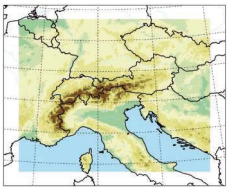
100 – 1000 Jahre | 100 – 150 Jahre

Regional Climate Modelling (COSMO – CLM)
Urban Modelling (MUKLIMO, PALM4U)

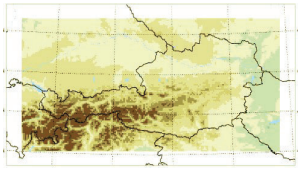
300 - 100km



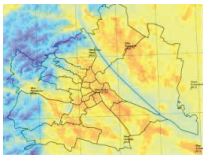
Europe 50km



Alps 10km



Austria 4km



Vienna 100m

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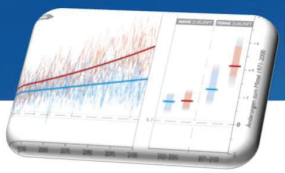
Climate Reference Scenarios



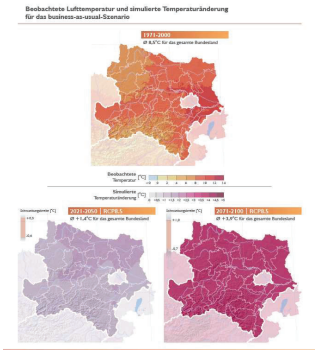
ÖKS15

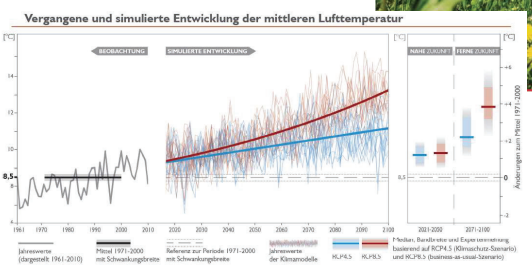
High resolution climate data and information

a) Climate impact research (1km)

b) General public (aggregated)

c) Fact-Sheets





Downscaled and bias corrected euro cordex ensembles

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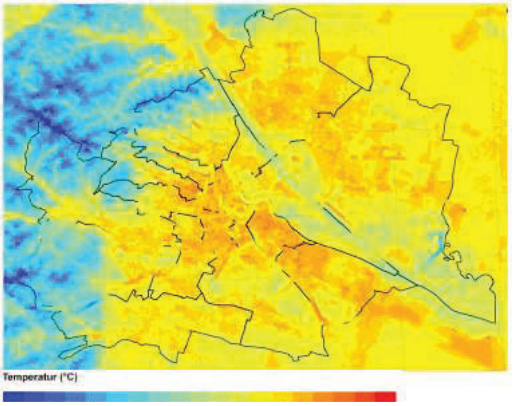
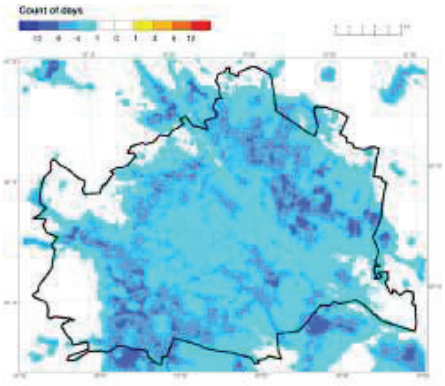
Mitigation: Urban Heat Island

- Climate projections for urban areas show increase in heat load for the coming decades
  - Dependent on land-use, urbanization…
  - Mitigation – green roofs, parks, water …
  - Modelling used for city planning





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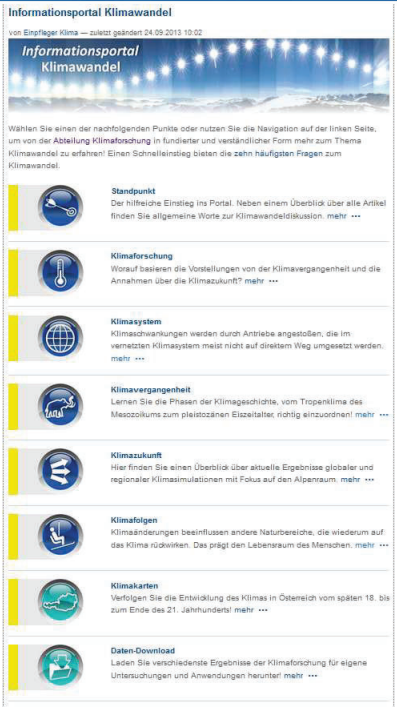
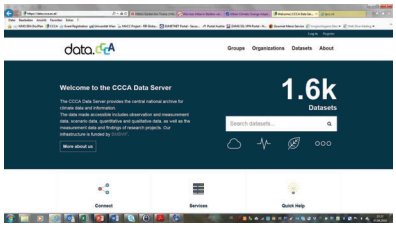
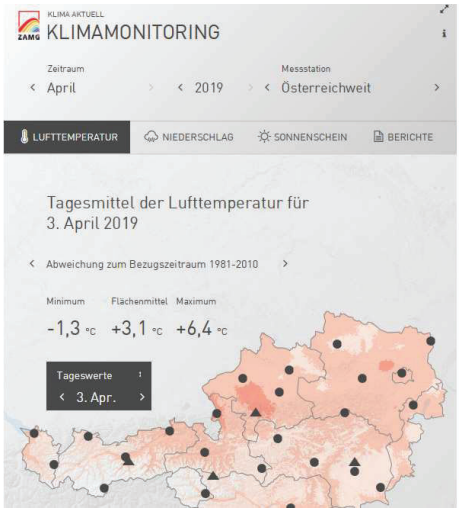
Dissemination, Climate data and information portals



ZAMG Climate information portal



CCCA Climate data portal (operated by ZAMG)



ZAMG Climate monitoring portal

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ZAMG/Austria: International Cooperation

Met Service Consulting/Co-operation

- Albania
- Belarus
- Ghana
- Hongkong (nuclear emergencies)
- Moldova
- Myanmar
- Seychelles
- South Korea (Winter Olympics)
- Sri Lanka (Monitoring Network)
- Vietnam

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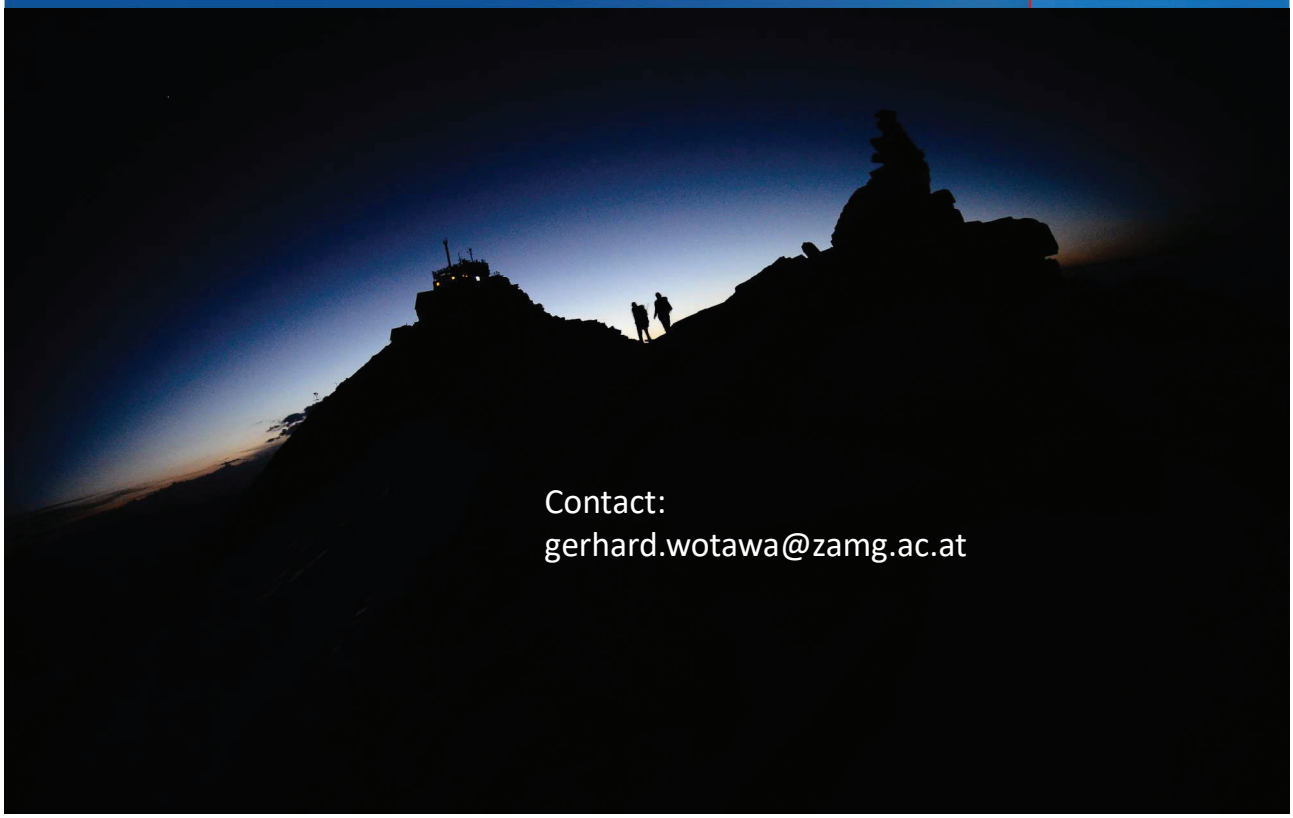
Thanks for your attention!



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