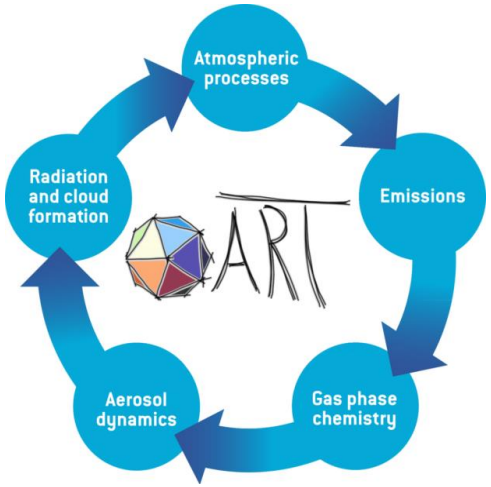
Workshop – natESM strategy

21. February 2022, virtual meeting



Request for support sprint

Pre-ARTEX

Short advisory activity (4 weeks)
To analyse the **ICON-ART** code for GPU-porting

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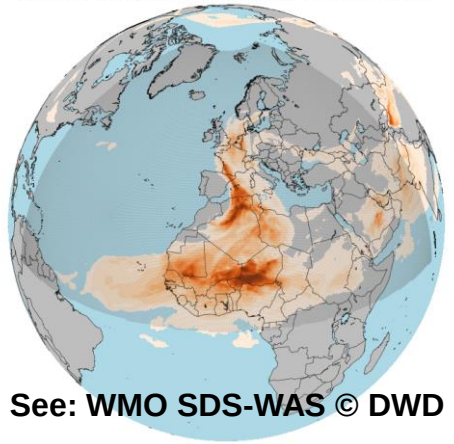
2018040800, vv: 003, ICON-ART, AOD_DUST



See: WMO SDS-WAS © DWD

Brief Overview of Model/Software

- ESM field: Atmospheric composition modeling
- User group: ICON and COSMO community (>20 institutions)
- Target: Seamless simulations / Convection resolving
- HPC usage: DKRZ (Mistral, Levante), KIT (FH2, HoreKa), DWD (NEC, Cray)
- Maintenance: KIT (IMK-TRO, IMK-ASF and SCC) is the main developer and uses the ICON infrastructure for maintenance (git etc.).

Model/Software Application Field

- Scientific highlights: Atmospheric composition modeling from large eddy to global scale incl. interactions with radiation, clouds and dynamics
- Seamless modelling from local air quality to global chemistry

Source: https://www.ichspringimdreieck.de/dachau-spielplatz-baumhaus

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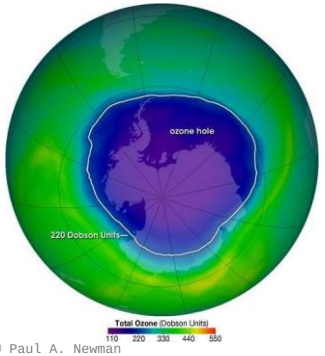

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http://ozonewatch.gsfc.nasa.gov/facts/hole.html

- Operational forecast of dust, pollen and volcanic ash by DWD; enable ESM applications

Description of Planned Work

WP	Task	Week 1	Week 2	Week 3	Week 4
1	Review of the current state (lessons from ICON)				
2	Code profiling and analysis				
3	Recommendations				
		Hackathon		**Hackathon**	

- Criteria for fulfilment: having detailed code analysis and recommendations

- Expected scientific and/or performance improvements:

  Development of a roadmap for modularization and GPU-porting of the ART code → first step toward making ART exascale-ready (ARTEX)