PRIORITY TASK TERRA NOVA

Evaluation of a new TERRA in COSMO 5.05

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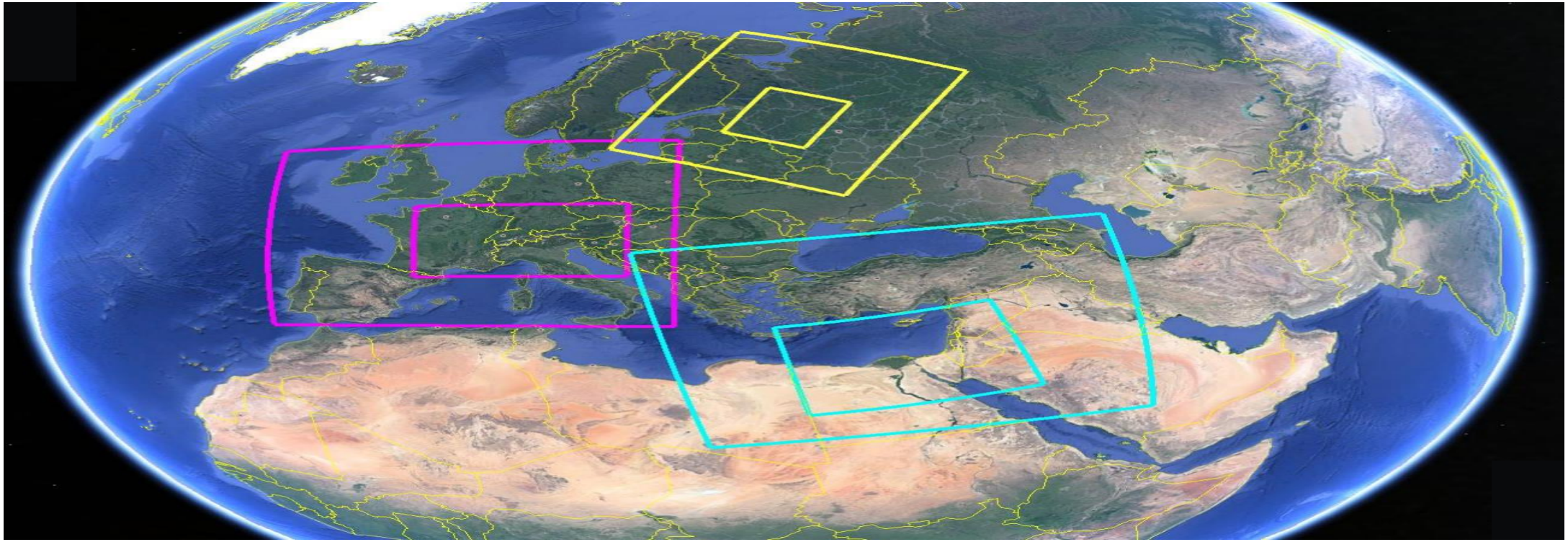
DISCUSSION

MOTIVATION – A QUICK REMINDER

- A new TERRA module in ICON
- Introducing new parametrizations and schemes
- Good results for new TERRA on global scale
- Assimilation of new module to COSMO is expected to improve model skills, but needs to be tested

SIMULATIONS SPECIFICATIONS

Mode	Initial Conditions	Boundary conditions	Resolutions	Domains	Periods	Reference version	Tested versions
hindcast	ECMWF "warm" soil start	ECMWF every 3 hours	~2.5km ~6.6km	Mediterranean W. Europe NW Russia	2016 2003+2015 2010+2016	COSMO 5.0 (POMPA GPU) COSMO 5.03 (RHM)	COSMO 5.05 Conservative Advanced

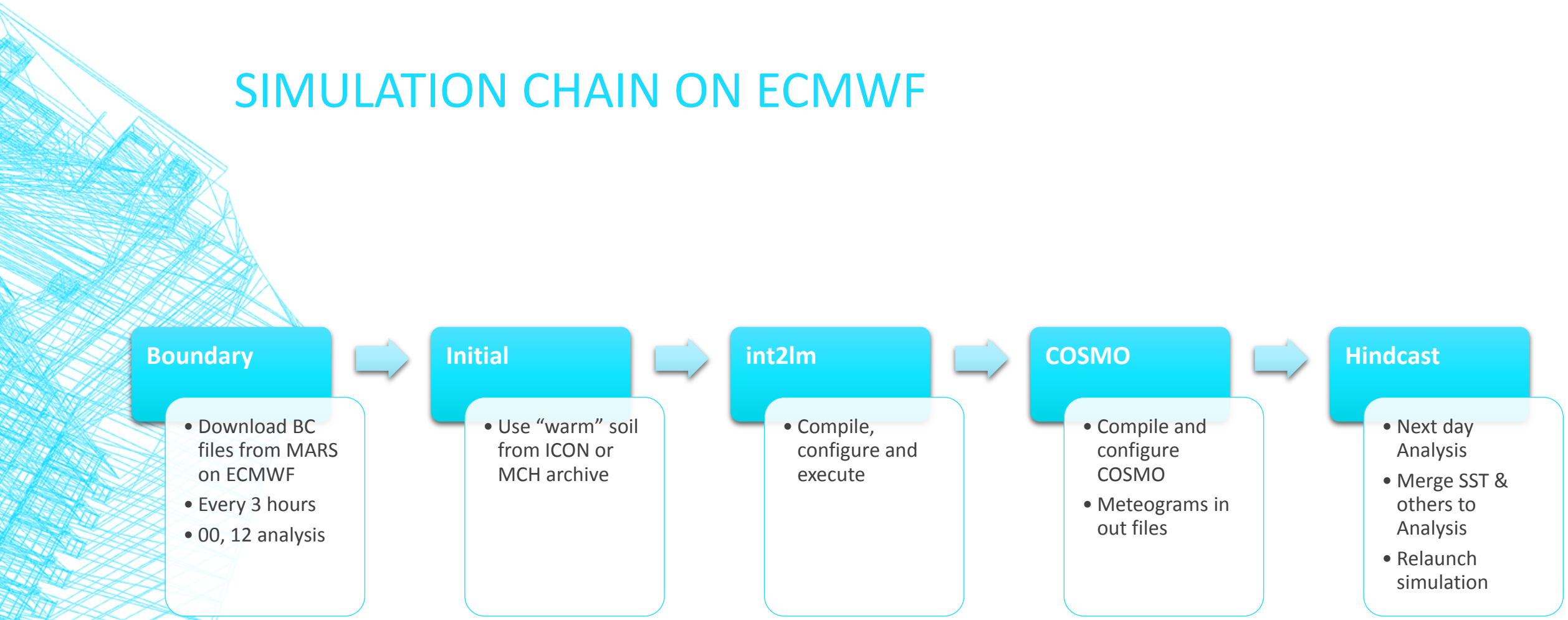


CURRENT STATUS

Status of:	MED / W. EUROPE	NW RUSSIA
Simulations (Hindcast)	- Reference setup (COSMO 5.0 as POMPA) is ready on ECMWF - Common Ground with ETHZ (EU7) is ready to run on ECMWF - 3 remaining domains, all is set and waiting in line - Insufficient Billing Units at ECMWF	- Already executed reference simulations (COSMO 5.03) - Entire 2016, 6.6km, 2.8km
Version 5.05	- Awaiting official 5.05 version - Adaptation of 5.04e underway	- Awaiting official 5.05 version
Verification	- Haven't started yet - If case of difficulties with VERSUS, Rfdbk will be considered	- Preliminary results for reference simulation

Extension requested and approved until June 2018

SIMULATION CHAIN ON ECMWF



INT2LM NAMELIST PARAMETERS

HTTP://WWW.COSMO-MODEL.ORG/CONTENT/TASKS/WORKGROUPS/WG3B/DOCS/HINDCASTS%20COSMO%205.05.HTM

parameter	5.0	5.05 Conservative	5.05 Advanced	
itype_albedo	3	3	3	-
itype_aerosol***	1	2	2	**2** activates the Tegen climatology
itype_ndvi*	0	0	1	**1** activates a yearly cycle for PLCOV and LAI based on an averaged ndvi ratio.
itype_rootdp	0	0	4	**4** takes the input from the external data set without modifications. This is done in the COSMO-Model now.
lemiss	.FALSE.	.FALSE.	.TRUE.	take a map from the external parameters for the thermal radiative surface emissivity.
lstomata	.FALSE.	.FALSE.	.TRUE.	take a map from the external parameters for the minimum stomata resistance of plants.

COSMO NAMELIST PARAMETERS

HTTP://WWW.COSMO-MODEL.ORG/CONTENT/TASKS/WORKGROUPS/WG3B/DOCS/HINDCASTS%20COSMO%205.05.HTM

parameter	5.0	5.05 Conservative	5.05 Advanced
tkhmin	0.4	0.4	0.75
pat_len	500	500	750
tur_len	150	150	500
a_hshr	0.2	0.2	2.0
c_soil	1.0	1.0	1.75
itype_root	1	1	2
itype_heatcond	1	1	3
itype_evsl	2	2	4
rat_sea***	20	20	7.5
imode_tran***	1	1	0
itype_aerosol***	1	1	2
lemiss	.FALSE.	.FALSE.	.TRUE.
lstomata	.FALSE.	.FALSE.	.TRUE.

CHALLENGES

- Official 5.05 Release
- Adaptation of version 5.05 to PT COSMO version (POMPA…)
- Securing Billing Units (probably resolved)
- Verification
  - Observations
  - VERSUS on ECMWF
  - Rfdbk / IMS in-house
  - Via meteograms (requires decision prior to execution)

DISCUSSION

- Namelist parameters
- Obtaining observation for EU domain
- Verification
- Others

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