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CONSORTIUM FOR SMALL SCALE MODELING
COSMO

# Some additional considerations

Jean-Marie Bettems / MeteoSwiss

COSMO GM
Lugano, September 10th , 2012

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# Developments planned at MeteoSwiss

# Developments at MeteoSwiss

- A master student will work at MeteoSwiss for **5 months,** starting next week, under the supervision of Jean-Marie Bettems
  - The primary goal is to integrate the highly resolved topographic data **ASTER** (dx=30m) in the EXTPAR software
  - Depending on the remaining resources, more aspects of the external parameters could be tackled: parameters for topo corrected radiation, scale separation z0 / SSO, HWSD
  - This will be coordinated with the DWD

- Tests at MeteoSwiss with the **latest TERRA / external parameters** developments are on-going

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# Overview of ongoing land model developments within the CLM-Community

Synthesis collected by E. Davin

Sept. 2011

# SOILVEG - TERRA

| Person/institution in charge | Description of development | Version | Status |
|---|---|---|---|
| B. Ahrens (Uni Frankfurt) | New numerics for the Richards equation (necessary for multiple soil horizons and moving water tables) | Already implemented in TERRA stand-alone; will be tested in COSMO-CLM | Implementation in TERRA stand-alone in its final testing phase; implementation in COSMO-CLM in 2012 |
| B. Ahrens (Uni Frankfurt) | Carbon cycle | Will be implemented first in TERRA stand-alone | to be finished June 2012 (stand-alone version) |
| B. Ahrens (Uni Frankfurt) | Dynamic vegetation | Will be implemented first in TERRA stand-alone | To be started in 2012 |
| S. Schubert (PIK) | Urban scheme BEP (Martilli et al. 2002) | ? | ? |
| K. Trusilova (DWD) | Urban scheme TEB (Masson 2001) | COSMO-CLM v? | End 2012 |
| H. Wouters (KU Leuven) | Urban parameterization into TERRA_ML (this includes thermal roughness lengths parametrization with the help of new stability functions momentum and heat. Albedo, emissivity and momentum roughness length will be derived from satellite data to represent urban surfaces) | TERRA stand-alone 4.11 | Early 2013 |
| J. Volkholz (PIK) | River routing model | ? | ? |

# SOILVEG - Community Land Model

| Person/institution in charge | Description of development | Version | Status |
|---|---|---|---|
| E. Davin (ETHZ) | Community Land Model coupled to COSMO-CLM as subroutine | COSMO4.8-CLM11 CLM3.5 | Implemented and evaluated |
| E. Davin (ETHZ) | Community Land Model coupled to COSMO-CLM using OASIS3 coupler | COSMO4.8-CLM19 CLM3.5/CLM4 | Implemented and in testing phase, evaluated version end 2012 |

# SOILVEG - VEG3D

| Person/institution in charge | Description of development | Version | Status |
|---|---|---|---|
| G. Schaedler (KIT) | VEG3D coupled to COSMO-CLM as subroutine | COSMO4.8-CLM7 | Implemented and under testing |
| G. Schaedler (KIT) | VEG3D coupled to COSMO-CLM with OASIS coupler | ? | Planned |

# SOILVEG REQUEST

- Any **interest by the COSMO community** for some of these developments should be announced soon enough to plan the transfer of responsibility

- In this case a **focal point** should be nominated **within COSMO**, and this person should closely follow the concerned SOILVEG development

- **Feedback from the floor ?**

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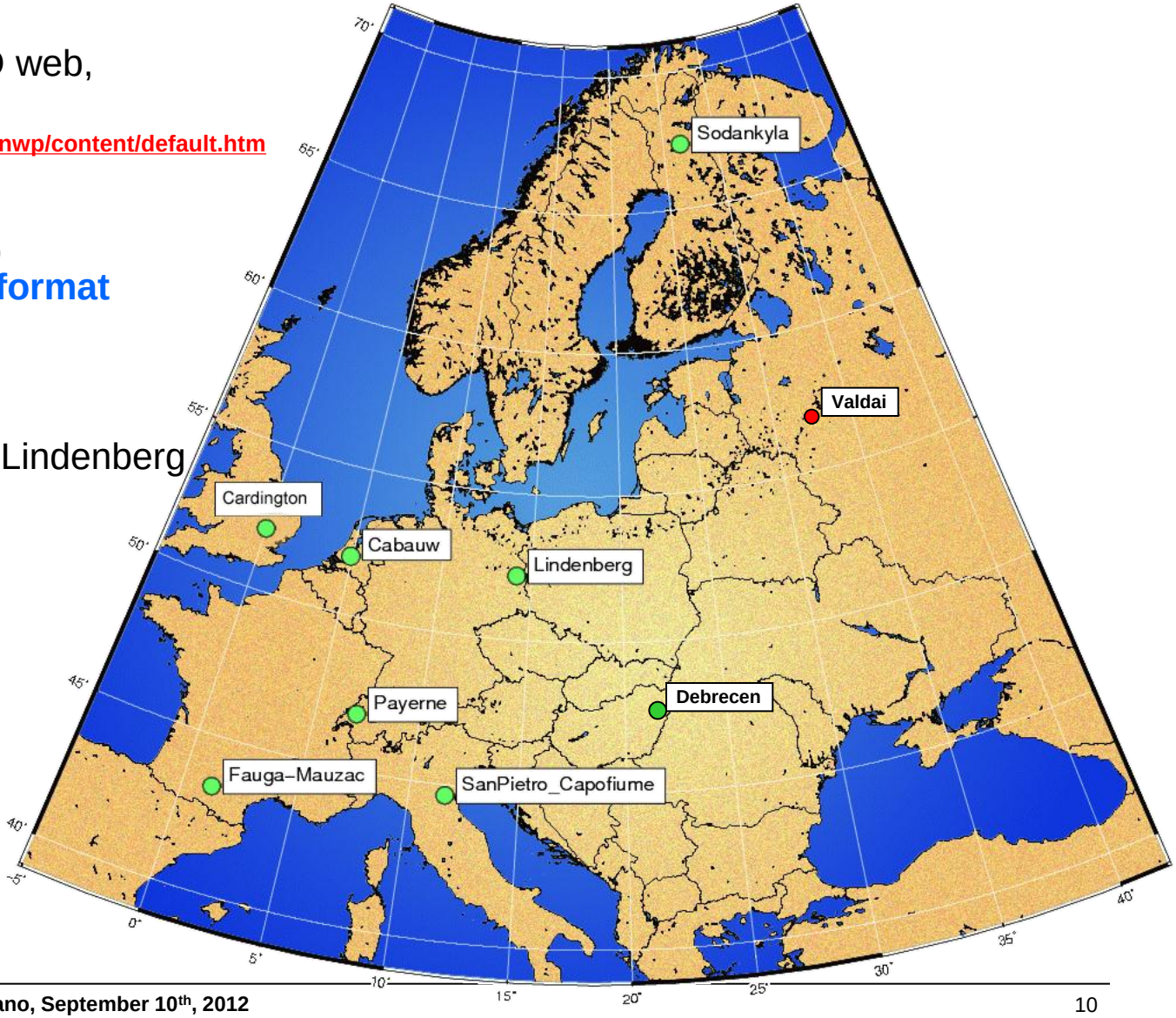
# SRNWP data pool

# Data pool action

- Access from COSMO web, password protected
  http://www.cosmo-model.org/srnwp/content/default.htm
- Currently **8 sites**, data from **2006-2011**, in a **common ASCII format**
- **Soil**, **surface** and **BL** observations
- Work done at DWD / Lindenberg (C.Heret)



# Data pool action
## Status

- Data available from start of the action to end 2011 for **Payerne** (CH), **Capofiume** (IT), **Fauga-Mauzac** (FR), **Lindenberg** (DE)
- Waiting for 2011 data from **Debrecen** (HU), **Cabauw** (NL)
- Waiting for error correction of 2011 data from **Sodankyla** (FI)
- Sever quality issues with **Cardington** data (GB)

- Agreement for one new site **Valdai** (RU)
  - … but no fluxes measurements, no soil measurements
  - **Do our Russian colleagues know if new types of observations are planned?**
  - **Is it worthwhile to integrate these data in the DB under the current conditions?**

- **The data pool action should be pushed at the next EWGLAM meeting**

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# COSMO PP CALMO : an objective method for model calibration

# COSMO PP CALMO

- Many **unconfined parameters** exist in COSMO, but the ‘expert tuning’ done within the development process is for a certain target area and for a certain model configuration; it is questionable if this calibration is still optimal for different target regions or other model configurations. Therefore an **automatic, multivariate, ‘objective’ calibration of those parameters** could be beneficial to the quality of the model configurations used by the different COSMO members and could accelerate the further development of the model, in particular when introducing significant new developments (e.g. EULAG).

- Such an objective calibration method **exists at ETHZ** and has shown to be at least as good as an expert tuning when applied to the COSMO-CLM .

- It is the goal of the CALMO project to **adapt the method** developed at ETHZ – with the contribution of the involved scientist – and to assess the impact of such a calibration on the forecast quality when using different target areas.

# COSMO PP CALMO

- The **SMC** recommends the adoption of this project
- The **StC** should decide today

- Project duration : **12.2012 – 12.2014**
- Required resources : **1.9 FTE**
- Contributing scientists : **Antigoni Vourouni / HNMS**
  **Omar Bellprat / ETHZ**
- Project assigned to WG3b

# Thank you for your attention!