Status of the EUMETNET C-SRNWP project
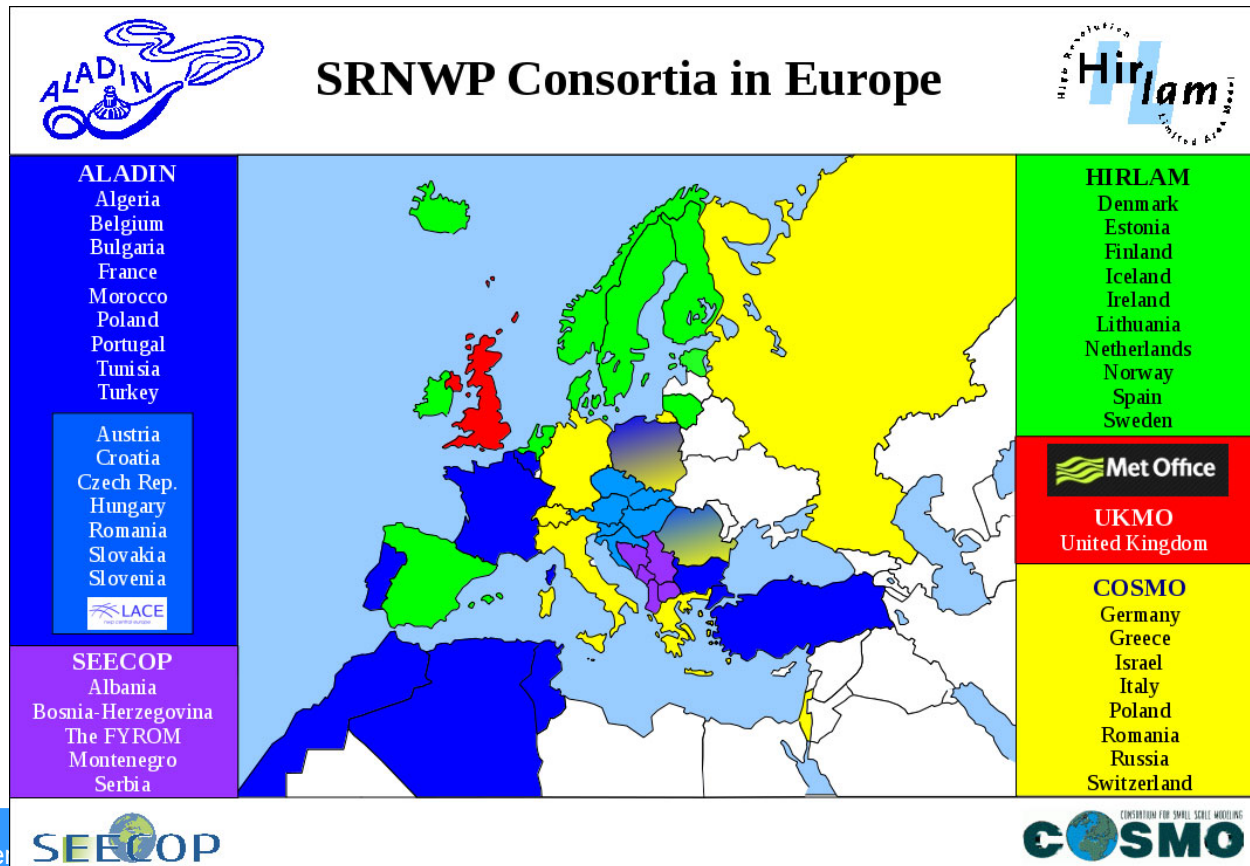
Balázs Szintai

with inputs from experts of ALADIN, COSMO, HIRLAM, LACE, SEECOP, UKMO

Outline

- Observation Programme support

- SRNWP data pool

- Global Lake Database

- SEECOP

- C-SRNWP Expert Teams

- EMS Annual Meeting

- EWGLAM Meeting

- Future of C-SRNWP

C-SRNWP Programme of EUMETNET

- Coordination of Short Range Numerical Weather Prediction in Europe
- 27 Member States
- Current phase: 2013-2018
- Yearly budget of 35.000 EUR (0.3 FTE + 5000 EUR travel)
- Coordinating Member: Hungary, OMSZ

SRNWP Consortia in Europe

ALADIN
Algeria
Belgium
Bulgaria
France
Morocco
Poland
Portugal
Tunisia
Turkey

Austria
Croatia
Czech Rep.
Hungary
Romania
Slovakia
Slovenia
LACE

SEECOP
Albania
Bosnia-Herzegovina
The FYROM
Montenegro
Serbia

HIRLAM
Denmark
Estonia
Finland
Iceland
Ireland
Lithuania
Netherlands
Norway
Spain
Sweden

Met Office

UKMO
United Kingdom

COSMO
Germany
Greece
Israel
Italy
Poland
Romania
Russia
Switzerland

C-SRNWP highlights

Observation network design (support EUCOS, Obs-SET)

- Collect DFS (Degrees of Freedom For Signal) and FSO (Forecast Sensitivity to Observations) observation impact indicators from the SRNWP community → this provides useful complementary information to Observing System Experiments

- The above is important in order to have an influence on the priority of EUCOS observation programmes/projects from an SRNWP perspective

- Obs-SET meeting: April 2017
  - In future: more involvement of the C-SRNWP PM in the definition of EUCOS impact studies → more focus on LAM aspects

C-SRNWP highlights

**Observation network design (support EUCOS, Obs-SET)**

Meeting of C-SRNWP Expert Team on Data Assimilation (Reading, Oct 2017)
- Possibilities for data assimilation impact studies were discussed
  - AMDAR vs. Mode-S (currently ongoing: Study 6)
  - Radiosonde descent data
  - OPERA
  - GNSS slant delays
  - Microwave radiometers
  - Surface radiation (available in SYNOP)
  - Crowdsourced data

C-SRNWP highlights

SRNWP Data Pool of surface observations

- Database of surface and boundary layer observations → validation of PBL and land surface models

- Freely available for EUMETNET Members and collaborating universities

- Five new users in the last 6 month

- Relation with Fluxnet is currently investigated
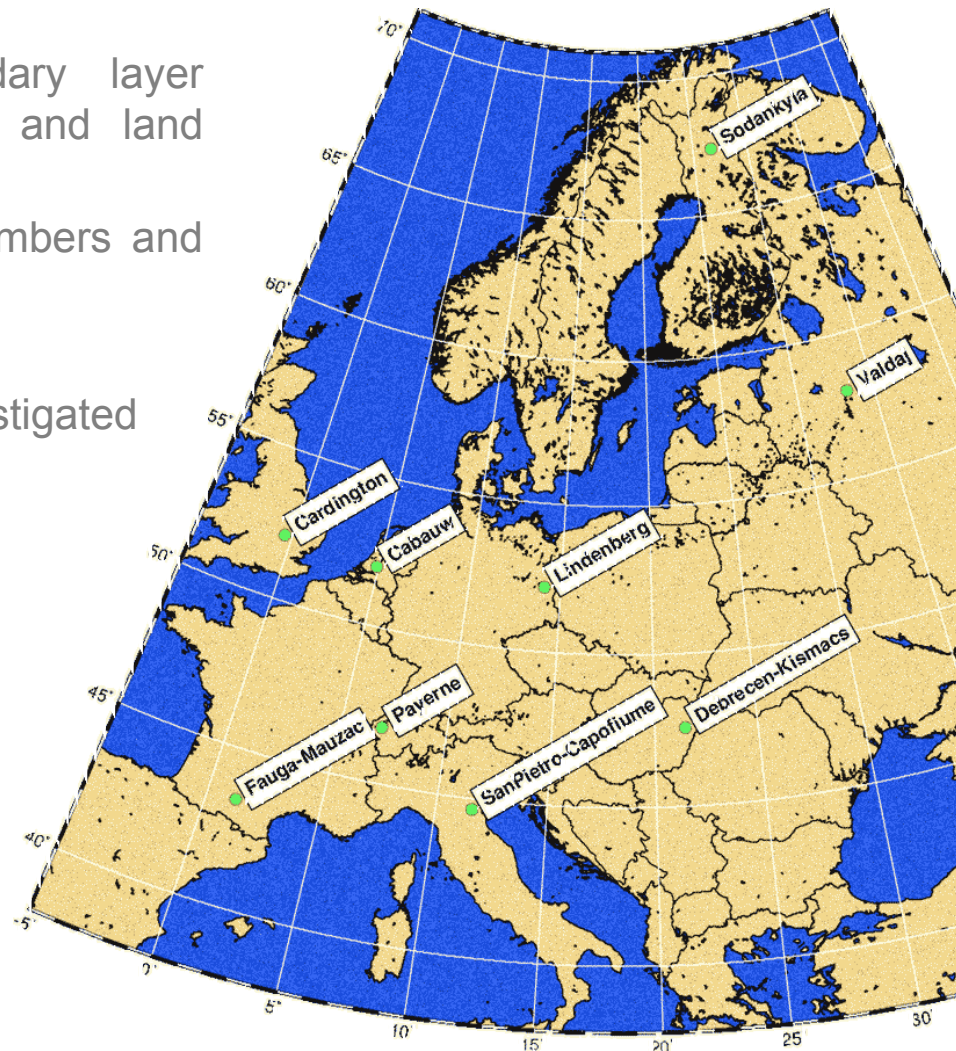
C-SRNWP highlights

Global Lake Database

- 8500 EUR/year (for maint. and devel.): included in the FPM budget
- 2017 maintenance cost transfered to FMI in February 2017 → work postponed to 2018 → new person: Olga Toptunova (visiting FMI)

- October 2016: STAC agreed in principal that the IPR for the Global Lake Data Base resides with all organizations and individuals who contributed to the development of GLDB
- March 2017: STAC agreed to implement the CreativeCommons license for GLDB

GLDBv3 – what we have now

The **individual lake list** from GLDBv1 (~13000 lakes) was **increased by ≈ 1'500 lakes**.

The global gridded lake depth data set from GLDBv1 was completed with **indirect estimates of the mean lake depth** from the geological origin **for the whole world** (we additionally allocated **233 regions** with homogeneous geological origin of lakes).

The **analytical equations** approximating statistical dependencies distributions **of the mean lake depth** for different climate zones depending on the lake area were **updated**.

The additional global gridded data set containing coded information about sources of data was updated.

All data (on **fresh-water and saline lakes**) are processed.

The "default" depth for fresh-water lakes and saline lakes is different – **"default" fresh-water lake depth** is set to the value of **10 m** and the **"default" saline lake depth** is set to the value of **5 m**.

Were introduced: **list of artificial (man-made) lakes and reservoirs** with unknown depths – the "default" depth value of **10 m**; **list of crater and caldera lakes** – the "default" depth value of **50 m**.

GLDBv3 – ongoing work

Collecting new in-situ data from different sources:
○ Limnology institute database – all lake types (mainly natural origin)
○ RGanD – only man-made lakes
○ National datasets, open access – all lake types

Motivation 1: **GLDB upgrade with new in-situ data**
✓ in addition – will be used for verification of indirect estimates,
✓ if needed – for adjustment of indirect estimate assumptions.

Problems: All sources of in-situ datasets have errors (preliminary random check of data) – data can't be used straight forward – is needed thorough (time-consuming!) check of
❖ coordinates – location error,
❖ water surface area – measurement unit error (ex. ha, m^2, etc.),
❖ mean depth data – measurement unit incorrect / max depth is given instead / mean over several lakes is given errors,
❖ double mentioning – same lake is mentioned several times with slightly different information.

Motivation 2: **GLDB is already used** by several consortiums in different NWP and climate models – **researchers rely on product quality**:
✓ dataset quality is determined by major information sources – only reliable or checked sources has to be used,
✓ indirect estimates are based on collected in-situ data – accuracy is dependent by quality of in-situ data.

Continues support for users is provided! (via email, WatsApp)

GLDBv3 – future plans

○ GLDB maintenance (including new data when available) – most important for product quality (also most time-consuming!).

○ Updated version of GLDB with the increased resolution basing on GLOBCOVER (or ESA-CCI)
  ❖ recently some other databases became available (Copernicus Water product, JRC Water dataset, Meteo-France Ecoclimap Second Generation),
  ❖ global applications still don't need extremely high resolutions – possibility to stay with 1km resolution,
  ❖ provide depth in each grid box – field with no missing values (experiments at ECMWF with IFS model show good results).

○ Support for GLDB users
  ❖ continuous via emails and voice applications.

C-SRNWP highlights

SEECOP

- South East European Consortium for Operational weather Prediction
- 5 South East Europen countries: Albania, Bosnia-Herzegovina, Macedonia, Montenegro, Serbia + Belarus
- Using NMMB (WRF) model
- Third meeting of SEECOP experts: 23 October 20017, Belgrade → C-SRNWP PM participated
- Workshop on using NMMB
- New members: Cyprus, Ukraine
- Data assimilation activities: EnKF installed on ECMWF computer (by Serbia)

C-SRNWP Expert Teams

8 C-SRNWP Expert Teams

- Data Assimilation (chair: Bruce Macpherson)
- Diagnostics, validation and verification (chair: Clive Wilson)
- Dynamics and lateral boundary coupling
- Link with applications (chair: Jeanette Onvlee)
- Physical parameterisation (upper air)
- Predictability and EPS (chair: Chiara Marsigli)
- Surface and soil processes (chair: Patrick Samuelsson)
- System aspects

- In red: no ET chair; if interested, please contact Balazs Szintai

C-SRNWP highlights

EMS Annual Meeting – 3-7 September 2018, Budapest, Hungary

- OSA1.10: Challenges in High Resolution Short Range NWP at European level including forecaster-developer cooperation
- Conveners: Balazs Szintai, Chiara Marsigli, Emily Gleeson
- Session related to EUMETNET, C-SRNWP and SRNWP-EPS-II
- Topics:
  - Observation impact studies
  - Development of the Global Lake Database and its applications in NWP models
  - The SRNWP Surface Data Pool, and its application for the verification of land surface models
  - Possible collaboration of developing post-processing systems also for probabilistic predictions at a European level
  - Forecaster-developer cooperation

- Abstract submission deadline extended, new deadline: **20 April**

C-SRNWP highlights

EWGLAM/SRNWP Annual Meeting

- 1-4 October 2018, Salzburg, Austria
- Local host institute: ZAMG
- EUMETNET support (6000 EUR)
- Special topic: quality measures of precipitation forecasts
- First announcement by the beginning of May
- parallel sessions, side meetings

C-SRNWP highlights

- **New EUMETNET Portal:**
  - Started in March 2018
  - Based on Confluence
  - Material to be uploaded soon
 - ET mailing lists might be moved here

- **C-SRNWP website: Model table**
  - Updated in November 2017
  - 59 deterministic LAMs
  - 12 LAM ensemble systems
  - srnwp.met.hu/C_SRNWP_project/Eumetnet_List.html

Future of Forecasting CA / C-SRNWP

- Current EUMETNET phase ends in 2018
- New phase: 2019-2023
- Reorganization of the Forecasting Capability Area → Four larger programmes → contain modules
- C-SRNWP will be a module in the „NWP Cooperation" Programme

Timetable:

- March: Requirements submitted
- April-May: Requirements accepted by STAC/PFAC, Assembly → ITT issued
- September: deadline for proposals
- Oktober-November: decision by STAC/PFAC and Assembly
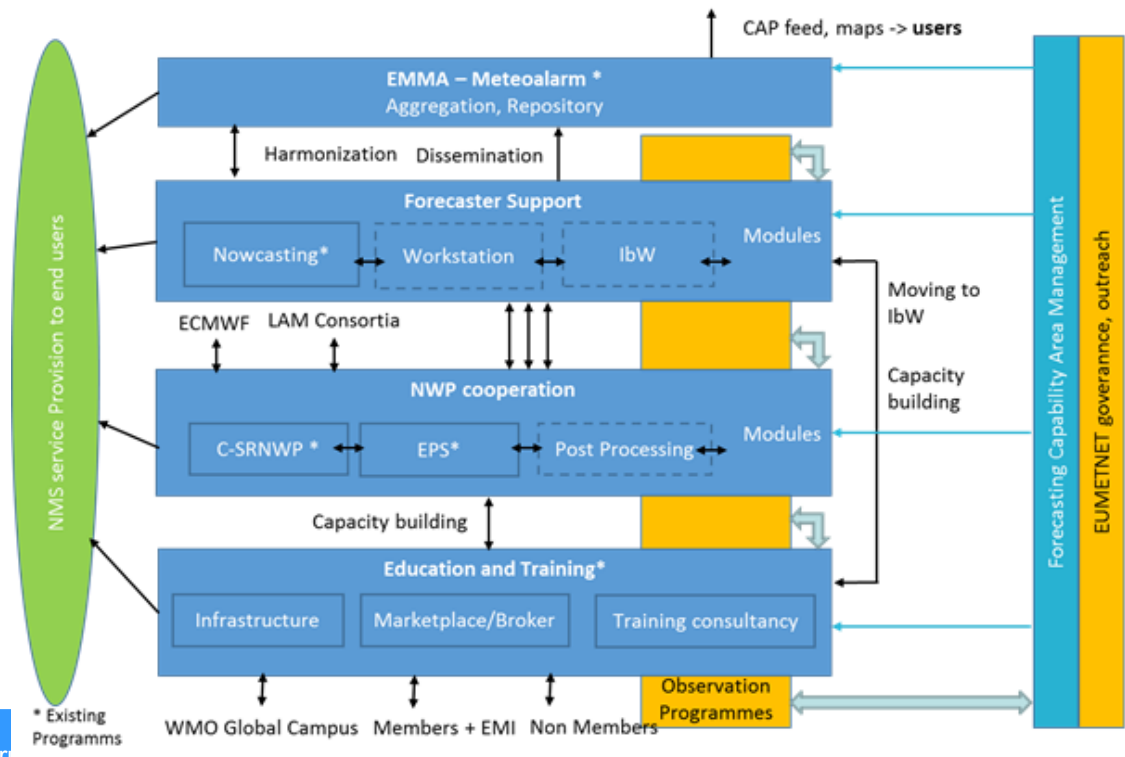
Future of C-SRNWP

Newly proposed C-SRNWP activities (for next phase):

- Short Term Scientific Missions: Yearly 1-2 missions (~2 k€/year) will be funded to deal with cross-consortia issues (either technical or scientific). NWP consortia have the funds to support internal exchange, however, this is usually not applicable for travel outside the consortia. A typical stay will last 1-4 weeks and participation of young scientist will be encouraged.
- EWGLAM invited speakers: a budget (~4 k€/year) will be devoted to fund the participation of relevant invited speakers from outside Europe at the EWGLAM/SRNWP annual meeting. This will help to keep a close contact with the NWP modelling community outside Europe (e.g. USA, Canada, Australia, Japan).
- Meeting participation for low GNI countries: For several countries with low GNI (even full members of EUMETNET) it is not possible to send a representative to the yearly EWGLAM/SRNWP meeting and thus it is difficult for them to build contacts with other NMSs in Europe in the field of SRNWP. A small budget (~2 k€/year) will be available to partly support this meeting participation for 2-3 persons.

Main results of C-SRNWP

C-SRNWP Programme (2013-2018):

- **EWGLAM Meeting** organized each year; starting 2018: 6000 EUR support from EUMETNET for local organizer

- **GLDB**: 8500 EUR/year for continuous maintenance and development

- **Surface Data Pool** is maintaned (in-kind contribution form Germany and Greece)

- **SEECOP**: recommendations formulated and fulfillment of these is followed

- **Obs-SET**: representing the interests of the LAM community

- **WMO**: C-SRNWP to help the initiation of new projects (e.g. SEE-MHEWS)

Thank you for your attention!

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GIE/EIG EUMETNET

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