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
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 transferred 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 Database 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, m², 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 European 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 maintained (in-kind contribution from 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!

Balázs Szintai
C-SRNWP Project Manager
GIE/EIG EUMETNET

C-SRNWP Project Manager
Hungarian Meteorological Service
Kitaibel Pál u. 1
Budapest, Hungary

Tel:  +36 1 3464705
Fax:  +36 1 3464669
Email: szintai.b@met.hu
Web:  srnwp.met.hu

GIE EUMETNET Secretariat
c/o L’Institut Royal Météorologique
de Belgique
Avenue Circulaire 3
1180 Bruxelles, Belgique

Tel:  +32 (0)2 373 05 18
Fax:  +32 (0)2 890 98 58
Email: info@eumetnet.eu
Web:  www.eumetnet.eu