# Status and plans of C-SRNWP

**Balázs Szintai**

***C-SRNWP Manager***

***…. with contribution from many of you***

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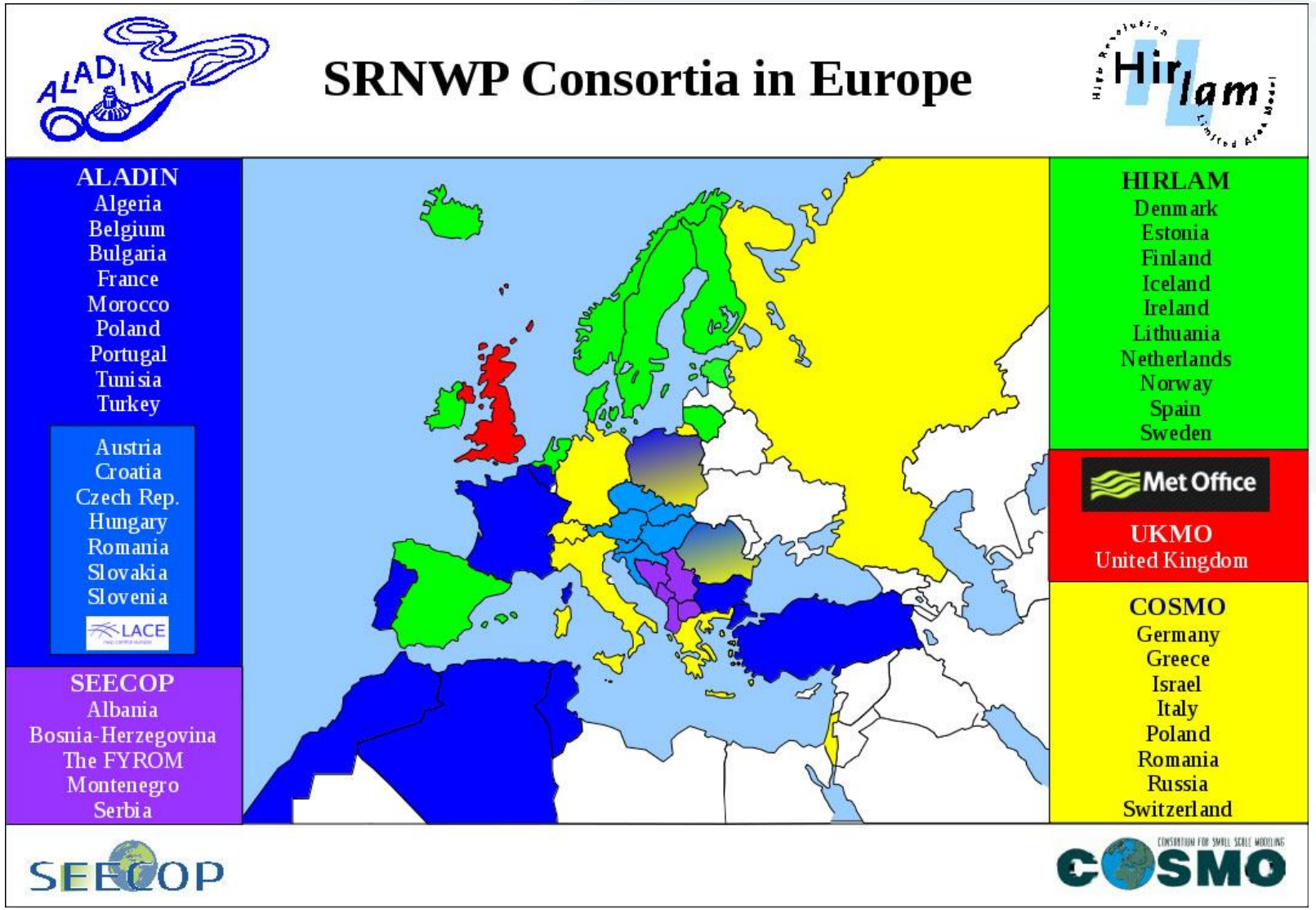
EUROPEAN METEOROLOGICAL SERVICES NETWORK

**COSMO General Meeting**

**10 September 2020**

# C-SRNWP Module of EUMETNET

- Coordination of Short Range Numerical Weather Prediction in Europe
- Current phase: 2019-2023
- 28 Member States, 2 Cooperating States
- New Members: Germany, Ireland
- Module Manager: 0.3 FTE
- Coordinating Member: Hungary, OMSZ



# C-SRNWP Expert Teams

## To foster communication between Limited Area NWP groups in Europe

### 8 C-SRNWP Topical Expert Teams (ETs)

- Data Assimilation (chair: Bruce Macpherson)
- Diagnostics and verification (chair: Marion Mittermaier)
- Dynamics and lateral boundary coupling
- Link with applications (chair: Jeanette Onvlee)
- Physical parameterisation (chair: Mike Bush)
- Predictability and EPS (chair: Chiara Marsigli)
- Surface and soil processes (chair: Patrick Samuelsson)
- System aspects

### Advisory Expert Team (AET):

- Heads of NWP consortia
- C-SRNWP Topical ET Chairs
- Observers: FCAM, Post-processing MM, SRNWP-EPS MM

### Core Members

| | ALADIN | COSMO | HIRLAM | MetOffice | RC LACE | SEECOP | ECMWF contact |
|---|---|---|---|---|---|---|---|
| *Data assimilation and use of observations* | Claude Fischer | Christoph Schraff | Roger Randriamampianina | **Bruce Macpherson** | Benedikt Strajnar | Bojan Kasic | Lars Isaksen |
| *Diagnostics, validation and verification* | Bogdan Bochenek | Flora Gofa | Bent Hansen Sass | **Marion Mittermaier** | Christoph Zingerle | Angel Marcev | Dave Richardson |
| *Dynamics and lateral boundary coupling* | Piet Termonia | Michael Baldauf | Sander Tijm | Ben Shipway | Petra Smolikova | | Michail Diamantakis |
| *Link with applications* | Maria Monteiro | Anastasia Bundel | **Jeanette Onvlee** | Simon Jackson | Benedikt Bica | Bojan Cvetkovic | |
| *Physical parameterisation (upper air)* | Yann Seity | Matthias Raschendorfer | Sander Tijm | Mike Bush | Neva Pristov | | Irina Sandu |
| *Predictability and EPS* | Geert Smet | **Chiara Marsigli** | Inger-Lise Frogner | Aurore Porson | Martin Bellus | | Martin Leutbecher |
| *Surface and soil processes (model and data assimilation)* | Patrick Le Moigne | Jean-Marie Bettems | **Patrick Samuelsson** | Martin Best | Alena Trojakova | | Gianpaolo Balsamo Patricia de Rosnay |
| *System aspects* | Ryad El Khatib | Massimo Milelli | Daniel Santos | Richard Gilham | Oldrich Spaniel | | Jenny Rourke |

### Additional Members

| | ALADIN | COSMO | HIRLAM | MetOffice | RC LACE | SRNWP-EPS Activity | Post-Processing Activity |
|---|---|---|---|---|---|---|---|
| *Data assimilation and use of observations* | Loik Berre, Maria Monteiro | Mihail Tsyrulnikov | Magnus Lindskog | David Simonin Lee Hawkness-Smith | Florian Meier, Michal Nestiak | | |
| *Diagnostics, validation and verification* | Marek Jerczynski, Alexander Kann | Joanna Linkowska | Xiaohua Yang, Ulf Andrae, Carl Fortelius | Nigel Roberts | Christoph Wittmann | | |
| *Dynamics and lateral boundary coupling* | | | | | Jozef Vivoda | | |
| *Link with applications* | | Flora Gofa | Per Unden | Mike Bush | Martina Tudor | | Stéphane Vannitsem |
| *Physical parameterisation (upper air)* | | Dmitrii Mironov Frederico Grazzini | Bent Hansen Sass | | Jan Masek | | |
| *Predictability and EPS* | Francois Bouttier, Alain Joly | André Walser, Christoph Gebhardt | Jan Barkmeijer | Anne Mccabe | Mihály Szücs | Alfons Callado Pallarés | |
| *Surface and soil processes (model and data assimilation)* | Rafiq Hamdi | Jürgen Helmert, Jan-Peter Schulz | Ekaterina Kurzeneva | Breogan Gomez | Jure Cedilnik, Balázs Szintai | | |
| *System aspects* | Andrey Bogatchev | Uli Schaettler | Ulf Andrae, Xiaohua Yang | | Martina Tudor | | |

# Cooperation with Obs CA (Obs-SET)

- **June 2020: Obs-SET Meeting (online)**
  - Presentation of LAM activities
  - Current topics within Obs-SET:
    - Radiosonde descent assimilation
    - Impact of COVID-19 on observations
    - User requirement for ALC (Automatic Lidar and Ceilometer) network
    - Privately owned weather stations
    - Observation impact studies

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# Action 3 – Impact studies - Timeline

| | Description | 2020 k€ | 2021 k€ | 2022 k€ | 2023 k€ | Total k€ | Status |
|---|---|---|---|---|---|---|---|
| | Budget for Action 3: Observation Impact Studies (k€) | 65 | 100 | 150 | 150 | | |
| A3.02 | MODE-S versus AMDAR impact study | | | | | 60 | Under review |
| A3.03 | Impact study of VAD/VVP versus E-AMDAR wind at airports | | | | | 27.1 | Commited |
| A3.04 | AMDAR humidity value for airlines | | | | | 0 | Paused |
| A3.05 | Impact study of AMDAR humidity versus radiosonde at airports | | | | | - | CANCELED? |
| A3.06 | AMDAR humidity value for LAM and forecasting service | | | | | 60 | Delayed |
| A3.13 | Placeholder R&D QC Activity on Privately-owned weather stations | | | | | 30 | NEW |
| A3.07 | Privately-owned Weather Station Observation impact study | | | | | 90 | Delayed |
| A3.12 | Placeholder for crowdsourcing | | | | | 90 | Extended |
| A3.10 | Impact study on additional GNSS products (e.g. Slant delay) | | | | | 30 | No change |
| A3.11 | Impact study on MWR brightness temperature | | | | | 30 | No change |

## Questions:

- When would it be a good time to run an impact study on STD?
- Anything else more pressing that we should include in this plan (bearing in mind that if we add a study then something else will have to be cancelled)

The plan for Action 3 now includes a new activity and an extended study to explore the value of low cost data source e.g. Privately-owned weather Station Observations (PWSO), focusing more activities on the sandbox database and with the user community. -> Details to be discussed this afternoon

| | |
|---|---|
| | New plan |
| | Plan approved at STAC19 |

*Slide presented by J. Sugier (EUMETNET Obs CA) at Obs-SET Meeting 2020*

# Aircraft-based observations Workshop (12-13 Feb 2020)

- **To give an overview of current ABO types, coverage, etc.. and future developments**
- **Bring together observation providers and users**

- **Presentation on AMDAR-humidity usage in LAMs**

- **Two new developments presented by Siebren de Haan:**
  - Correction of Mode-S EHS temperature
  - Correction of AMDAR temperature

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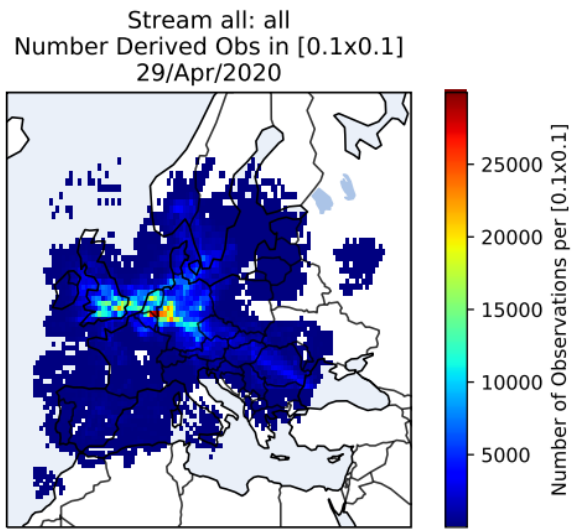
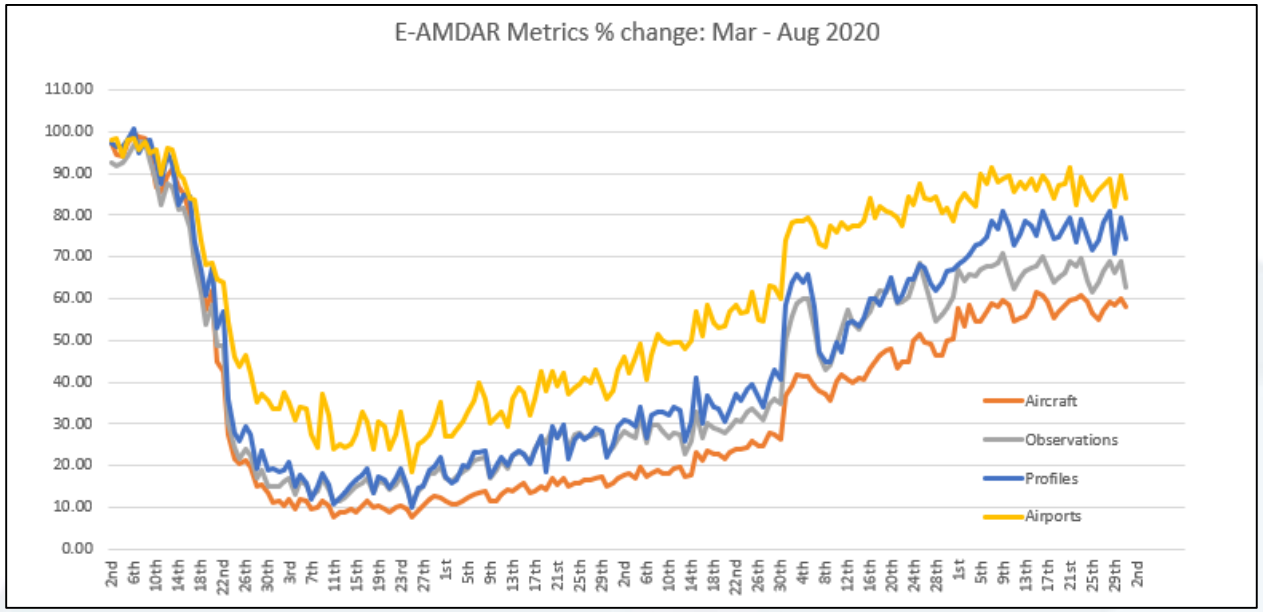
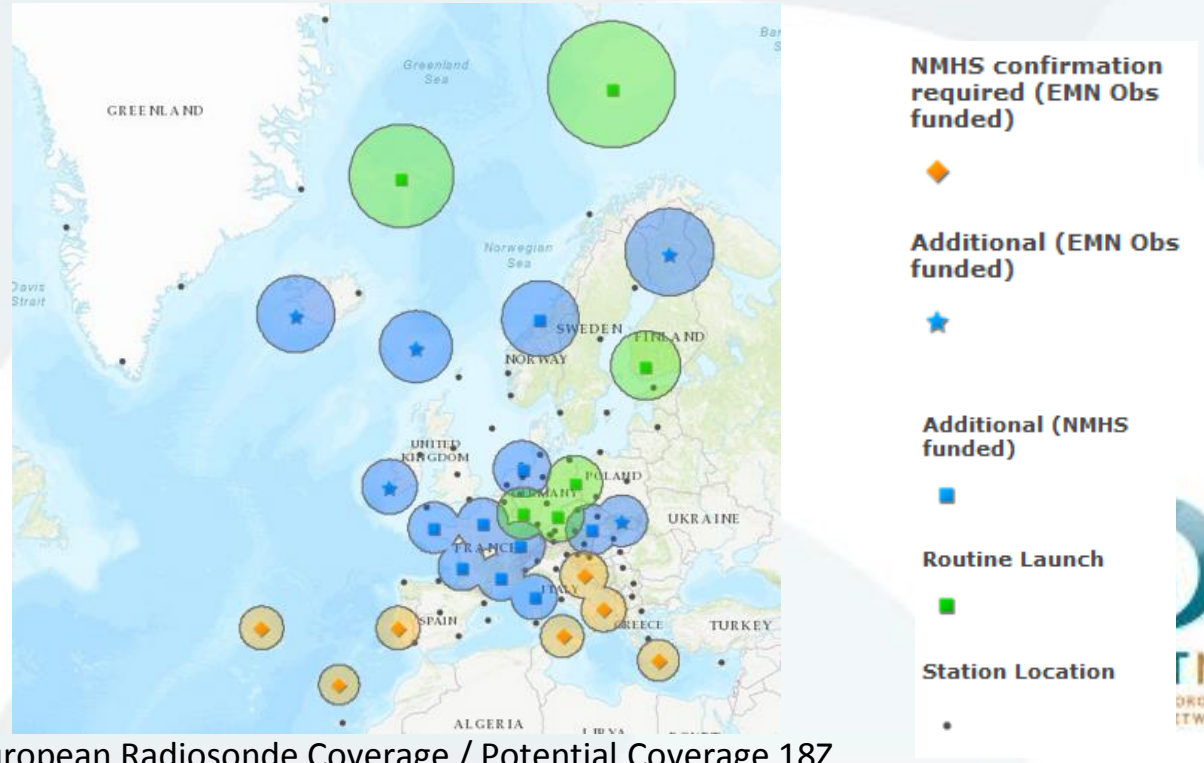
# Decrease in aircraft based obs.

- Due to COVID-19 situation, there was a reduction of 80% in AMDAR reports over Europe in April 2020
- Coordinated effort was made by EUMETNET Members to increase radiosoundings (at 06 and 18 UTC)
- New Mode-S data was quickly made available by EMADDC




European Radiosonde Coverage / Potential Coverage 18Z

# Short Term Scientific Missions

- New element in the C-SRNWP module
- NWP consortia have the funds to support internal exchange, however, this is usually not applicable for travel outside the consortia
- Yearly 1-2 missions (2000 EUR/year) will be funded to deal with cross-consortia issues (either technical or scientific).
- A typical stay would last 1-2 weeks and participation of young scientist is encouraged.
- Shared funding (EUMETNET/sending-host institute) is very welcome.

- Application form have been prepared and sent to Contact Points and consortia PMs
- Two collection dates per year: 1st March, 1st September
- Decision to be taken by AET
- 2019 autumn: Martin Imrisek (SHMU) work on GNSS STD assimilation (ALADIN-LACE-HIRLAM) at KNMI for four weeks (shared funding with LACE)

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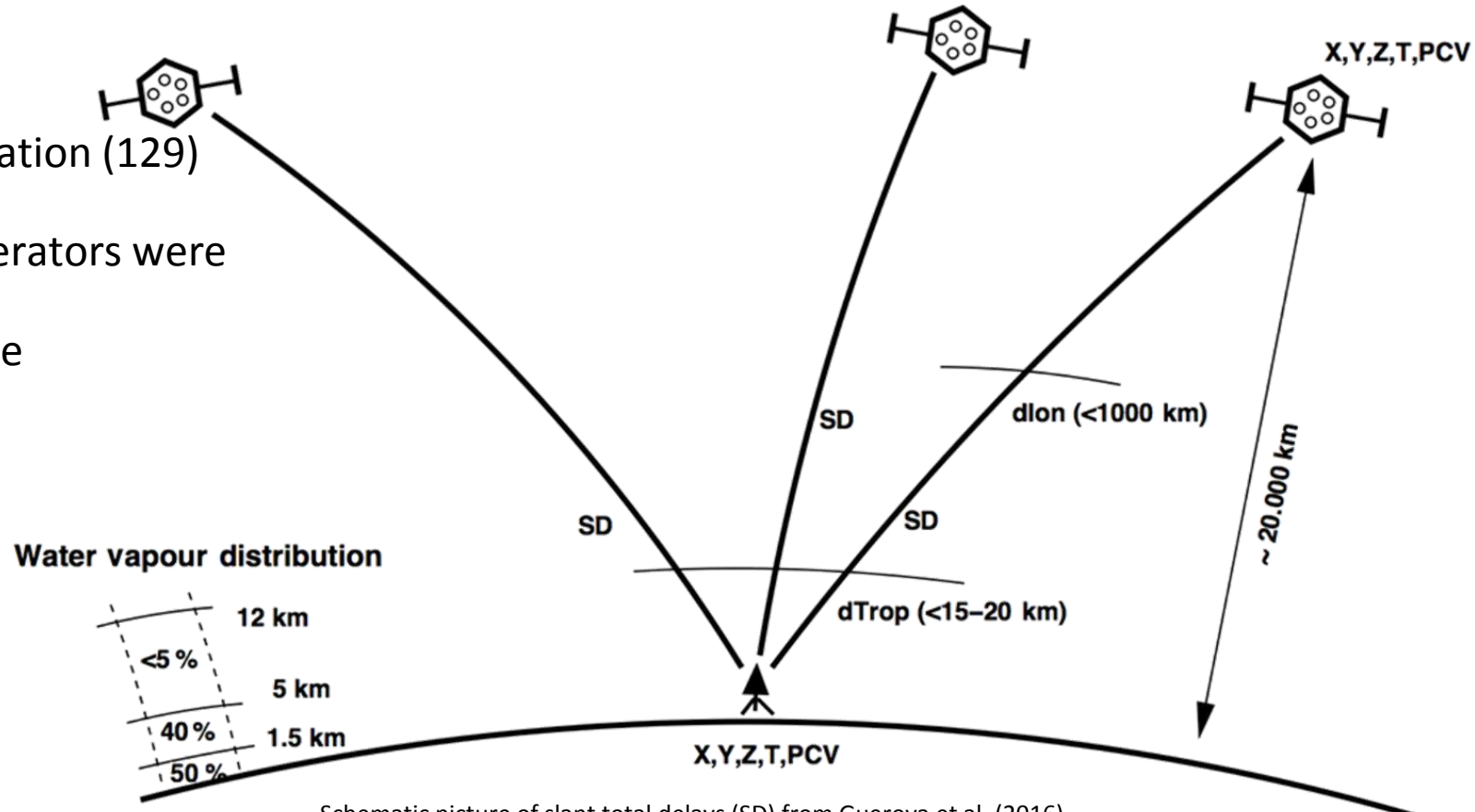
# GNSS slant total delays in the ALADIN NWP system

- Martin Imrisek
- Supervisor: Siebren de Haan
- KNMI 11/2019
- Phased from cy40h1 to cy43t2bf10

Financed by RCLACE and C-SRNWP

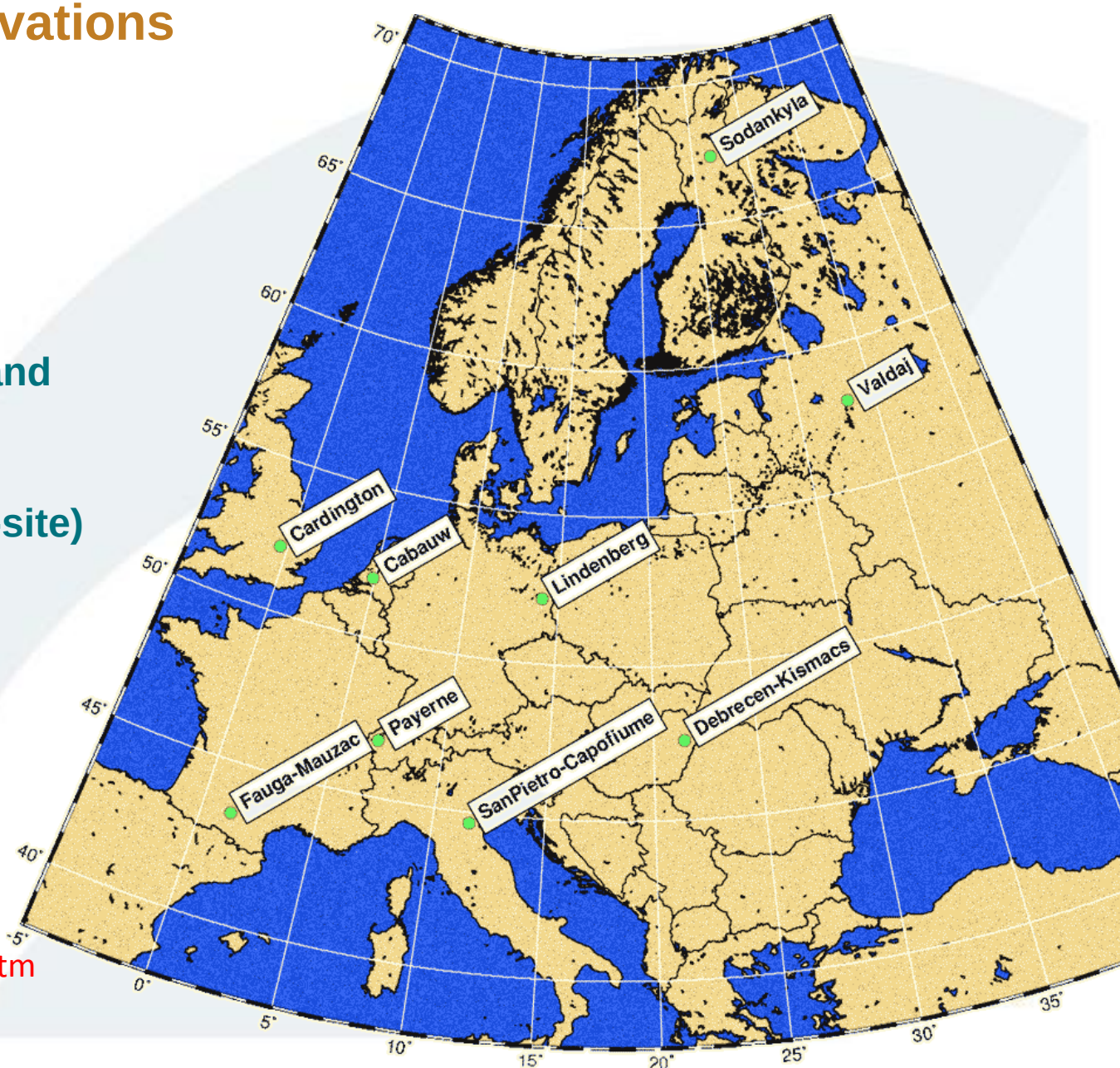
- Observation type (19) and observation (129) were added.
- Nonlinear, TL, AD observation operators were developed.
- Preliminary assimilation tests were performed.




Schematic picture of slant total delays (SD) from Guerova et al. (2016).

# 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
- Important in-kind contribution from DWD (collecting the data) and HNMS (web-site)




## Statistics for Sept 2018 – Aug 2019:

- 5 new users
- 440 monthly files downloaded

Website: http://srnwp.cosmo-model.org/content/default.htm
Account request: http://srnwp.cosmo-model.org/content/register.htm

# Global Lake Database (GLDB)

- **Database of lake location and depth**
- **Important input for NWP models running a lake parameterization**
- **In the past ~10 years: work financed by different LAM consortia**

- **Financial support of EUMETNET since 2017: 8500 EUR/year (for maintenance and development) → in the new phase included in the C-SRNWP budget**
- **Work coordinated by FMI (Ekaterina Kurzeneva), persons involved: Margarita Choulga (ECMWF) and Georgy Kurzenev**

**<u>Ongoing work / Plans:</u>**

- **Goal: produce new version of GLDB at 330 m resolution**
- **Steps:**
  - Preparation of the land-sea-lake map from the GSWE data (Global Surface Water Explorer, 30 m res., produced by JRC) → ongoing
  - Projection of lakes onto this map → starting in May

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# EWGLAM/SRNWP Annual Meeting 2020

- 28 September – 2 October 2020
- Organized as an online meeting due to COVID-19
- Special topic: external databases
- Invited expert from ESA: Clément Albergel

- ~120 participants

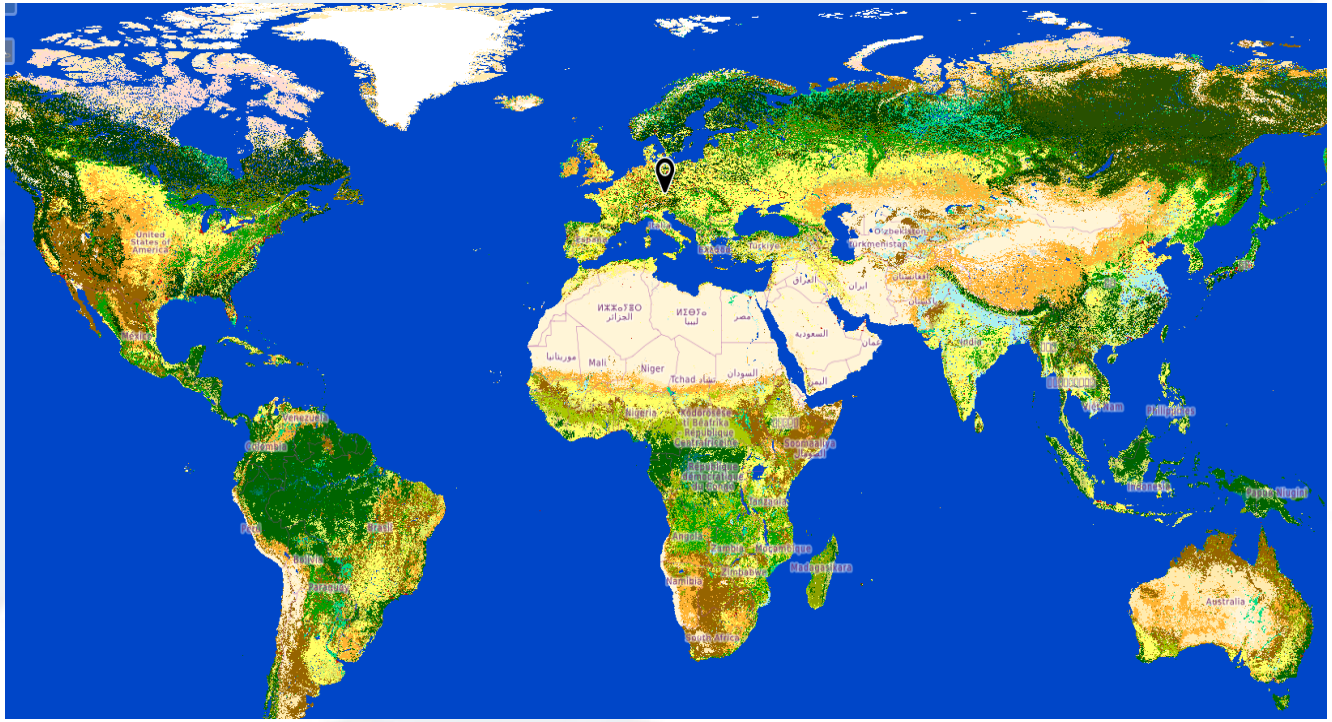
- Four breakout sessions (DA, EPS, SURF, VER+PHYS)

- Online registration is now closed

- Programme to be published by the end of this week

# STAC paper on physiography datasets

- Several LAM NWP consortia started to investigate ESA-CCI land cover map
- ESA-CCI (and other) land cover and physiography datasets has to be „checked” before using operationally in NWP models
- This „checking” could be done centrally to save resources
- EUMETNET is asked for 10.000 EUR in the first year with an evaluation and possible continuation after the end of the first year
- Spring 2020: STAC asked C-SRNWP to coordinate this proposal with ESA and Copernicus



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# Thank you for your attention!

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# CONTACT DETAILS

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