Status and plans of C-SRNWP

Balázs Szintai

C-SRNWP Manager

…. with contribution from many of you

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

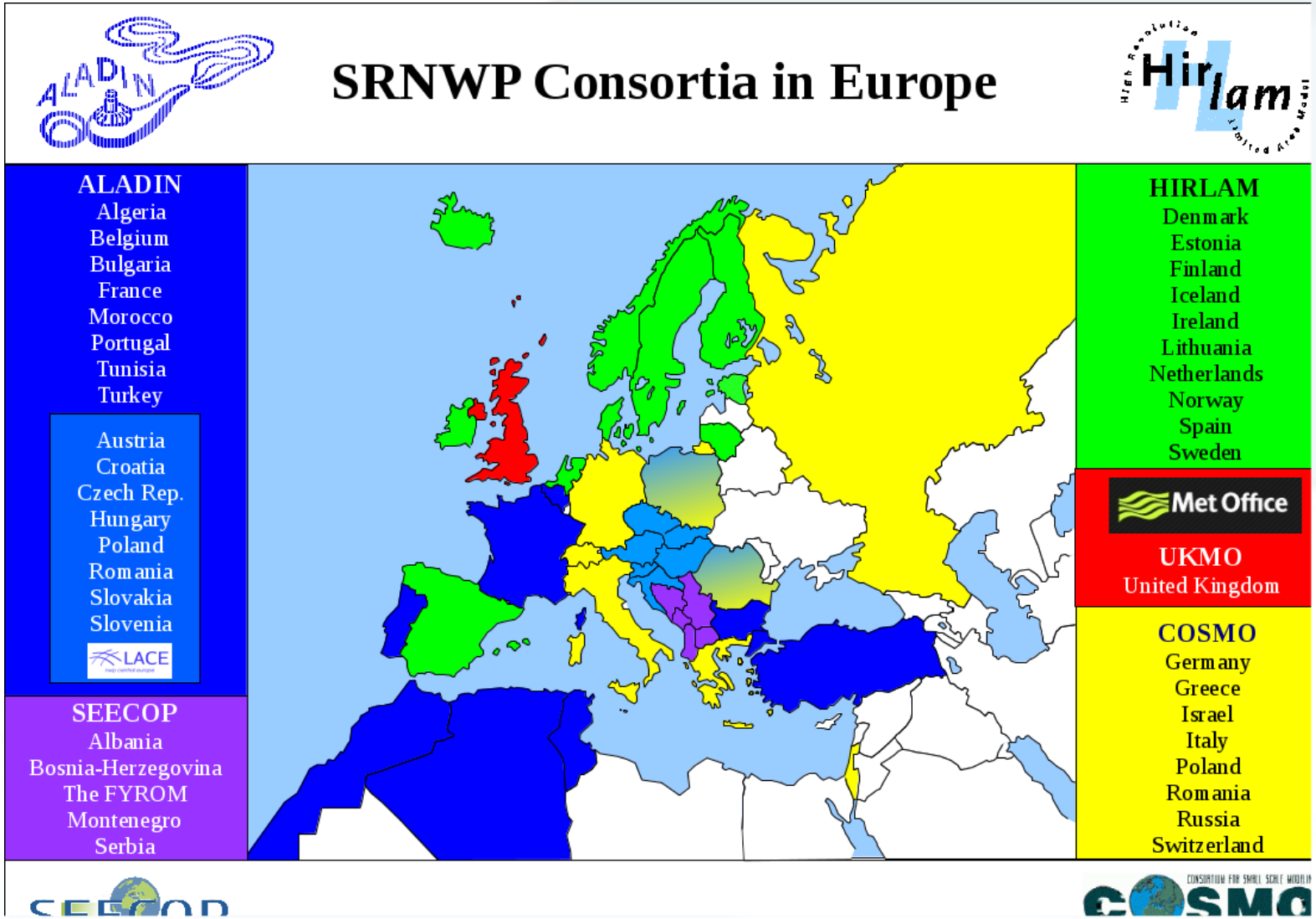
EWGLAM/SRNWP Meeting

Online

28 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

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

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

To be discussed at the DA breakout session

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**

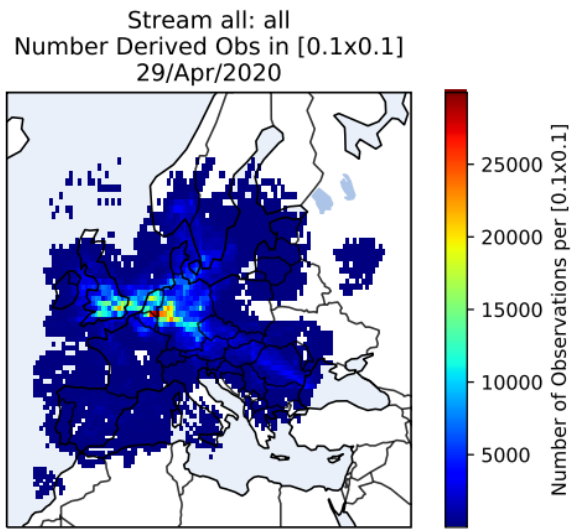
- **Presentation on AMDAR-humidity usage in LAMs**

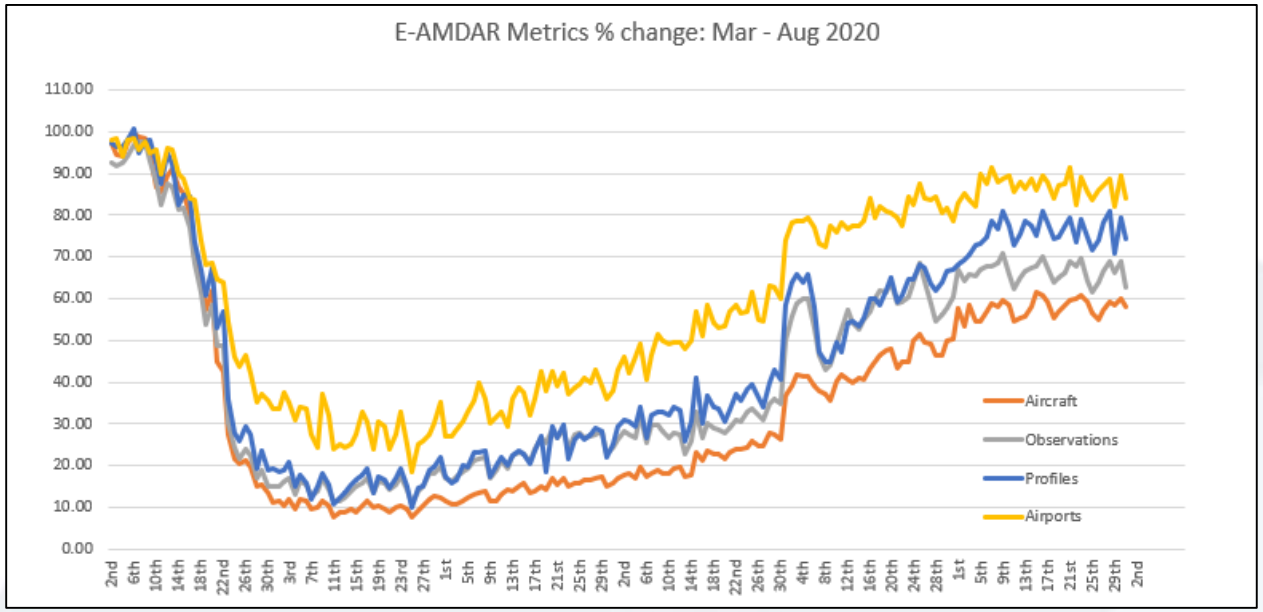
- **Two new developments presented by Siebren de Haan:**
  - Correction of Mode-S EHS temperature
  - Correction of AMDAR temperature

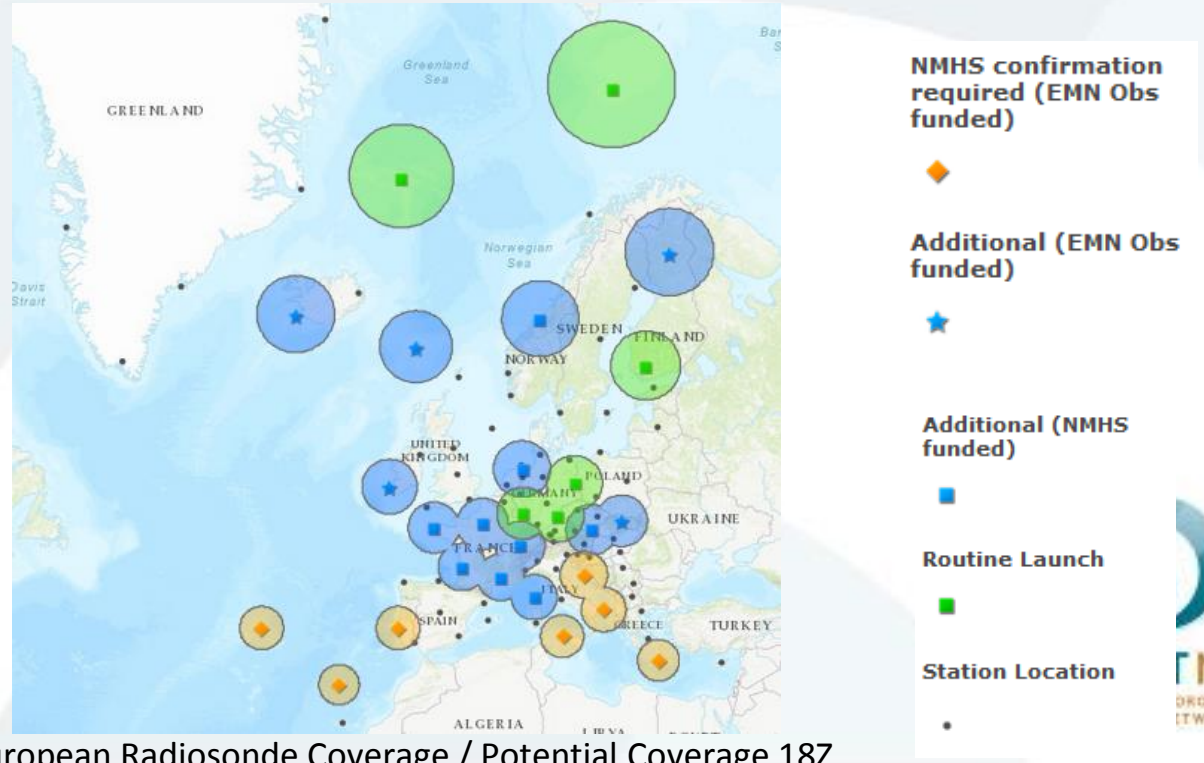
EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

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)

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

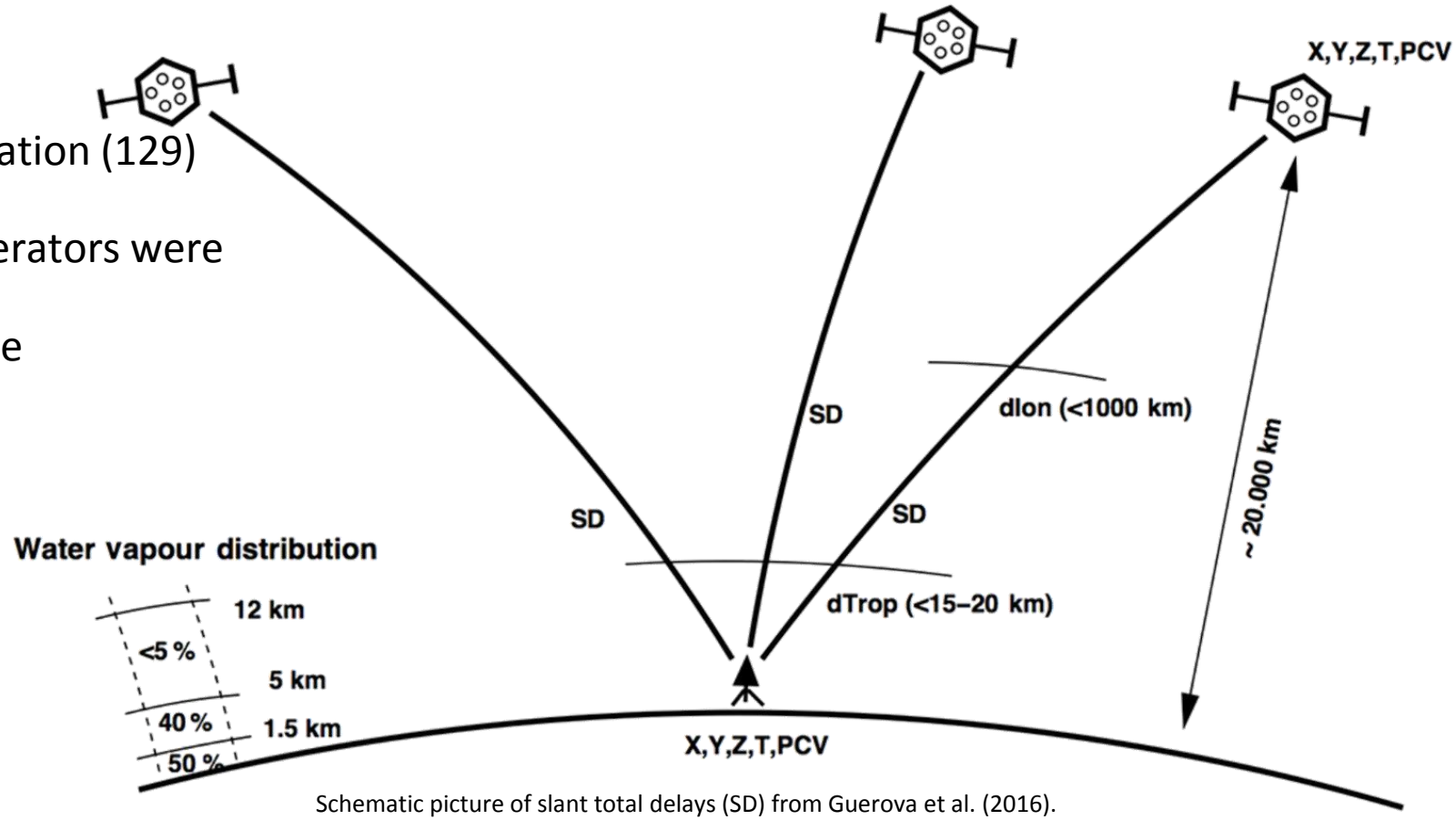
GNSS slant total delays in the ALADIN NWP system

- 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.

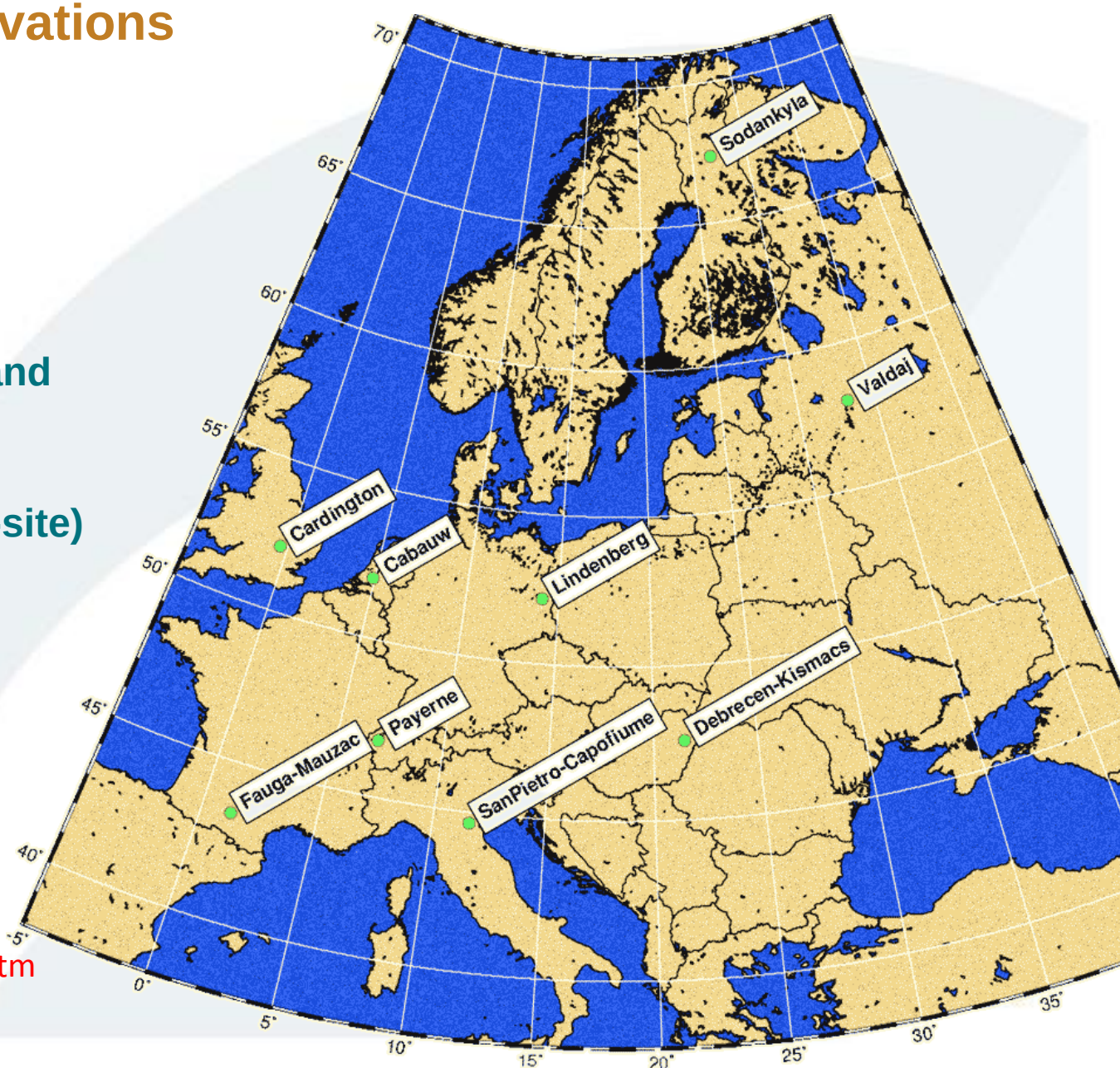
Presentation in DA breakout session



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 2019 – Aug 2020:

- 2 new users
- 15 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**

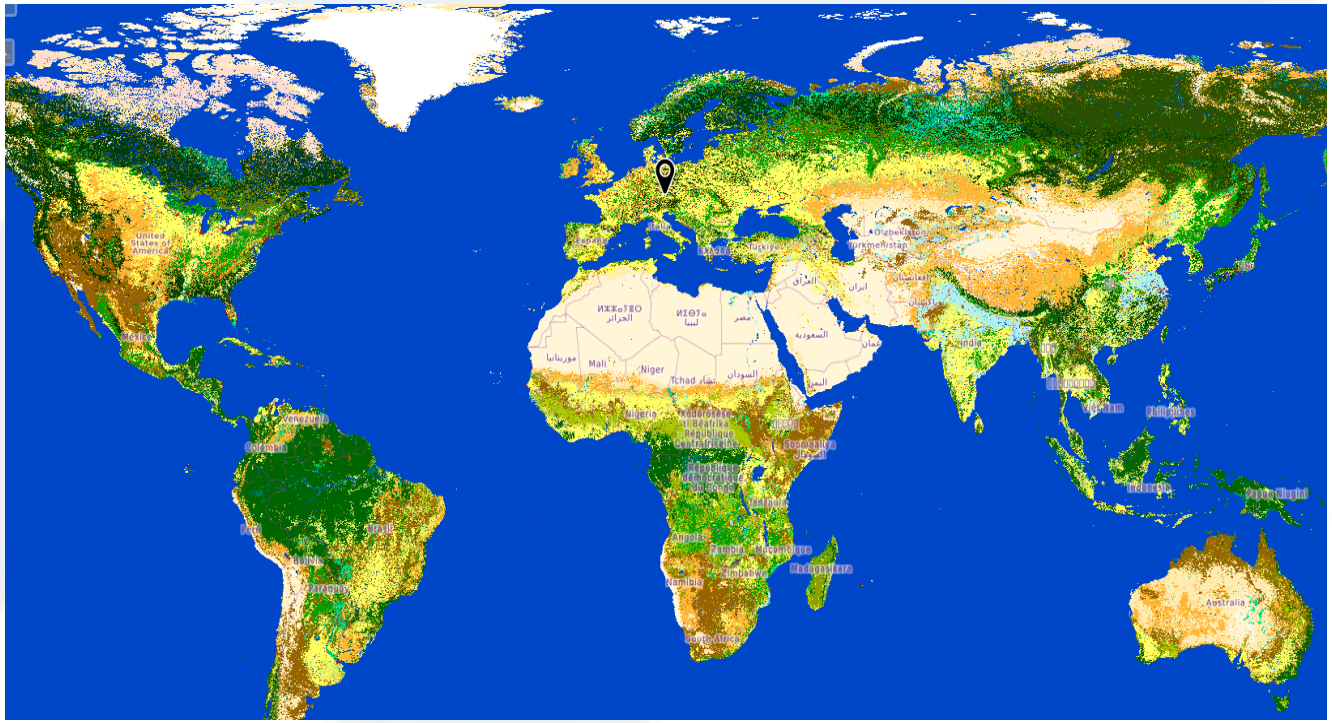
<u>Ongoing work / Plans:</u>

- **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

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

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



To be discussed at the Surface breakout session

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

Thank you for your attention!

EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

CONTACT DETAILS

Balázs Szintai

C-SRNWP Manager

EIG EUMETNET
European Meteorological Services' Network
www.eumetnet.eu

Phone: +36 1 346 4705

Email: szintai.b@met.hu