EUMETNET

EUROPEAN METEOROLOGICAL SERVICES NETWORK

EUMETNET Forecasting Programme

C-SRNWP business meeting, Antalya, 3 October 2013

Dick Blaauboer, KNMI, EUMETNET Forecasting Programme Manager

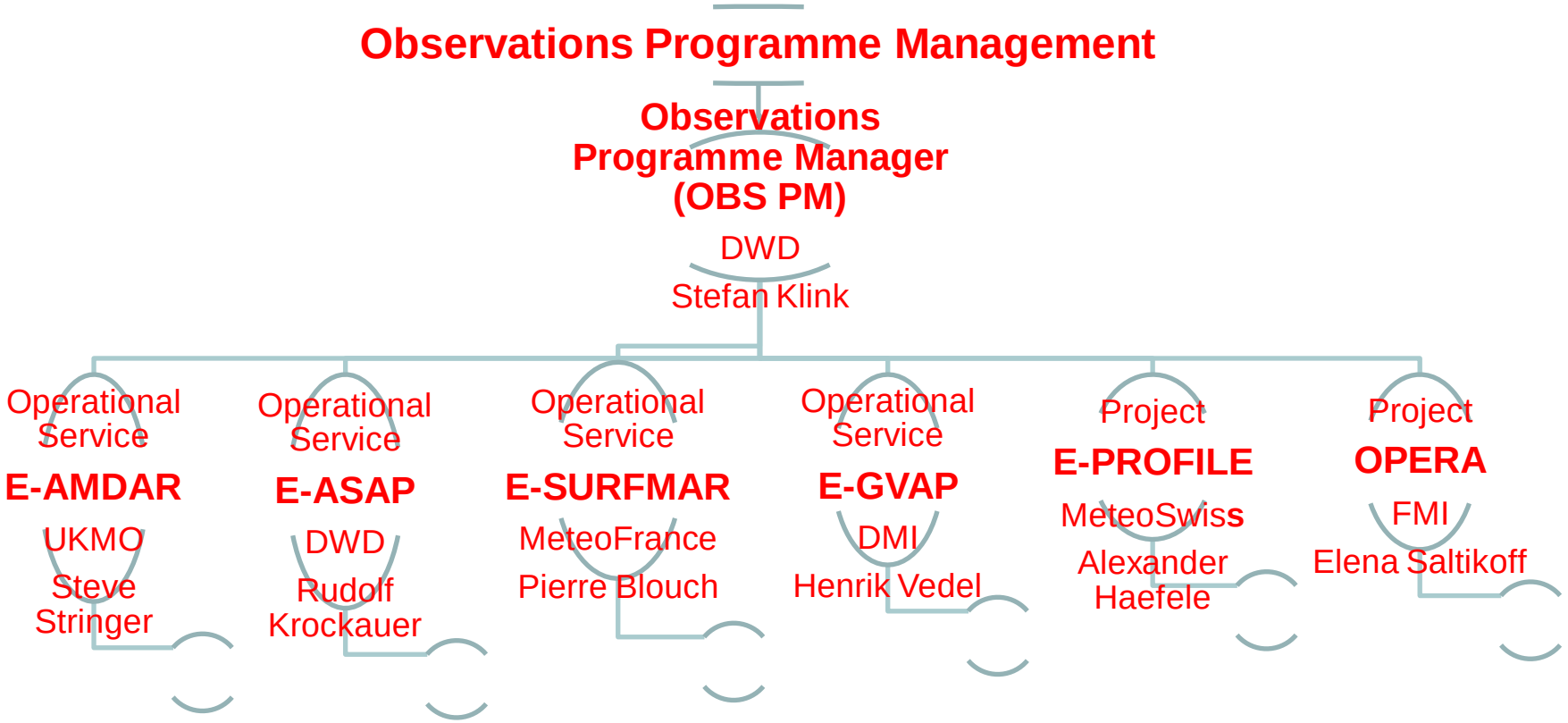
Delivery – Current Programmes

Started Jan 2013
Ending Dec 2017

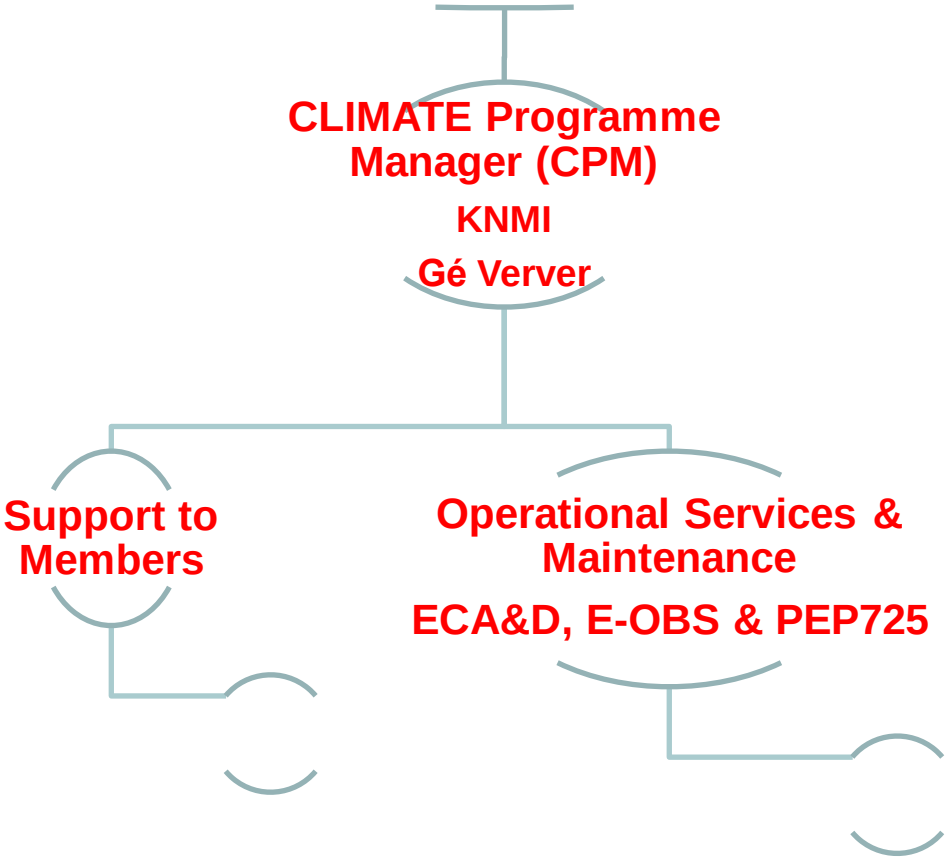
Programmes cover 3 capability areas:

- **Observations** Programme
- **Forecasting** Programme
- **Climate** Programme
- The Programmes are structured in a **Programme Management** function coordinating **Projects** and/or **Operational Services** and/or **Activities** related to specific fields.
- Management of each component is handled by one of the EUMETNET Members (**Coordinating Member**)

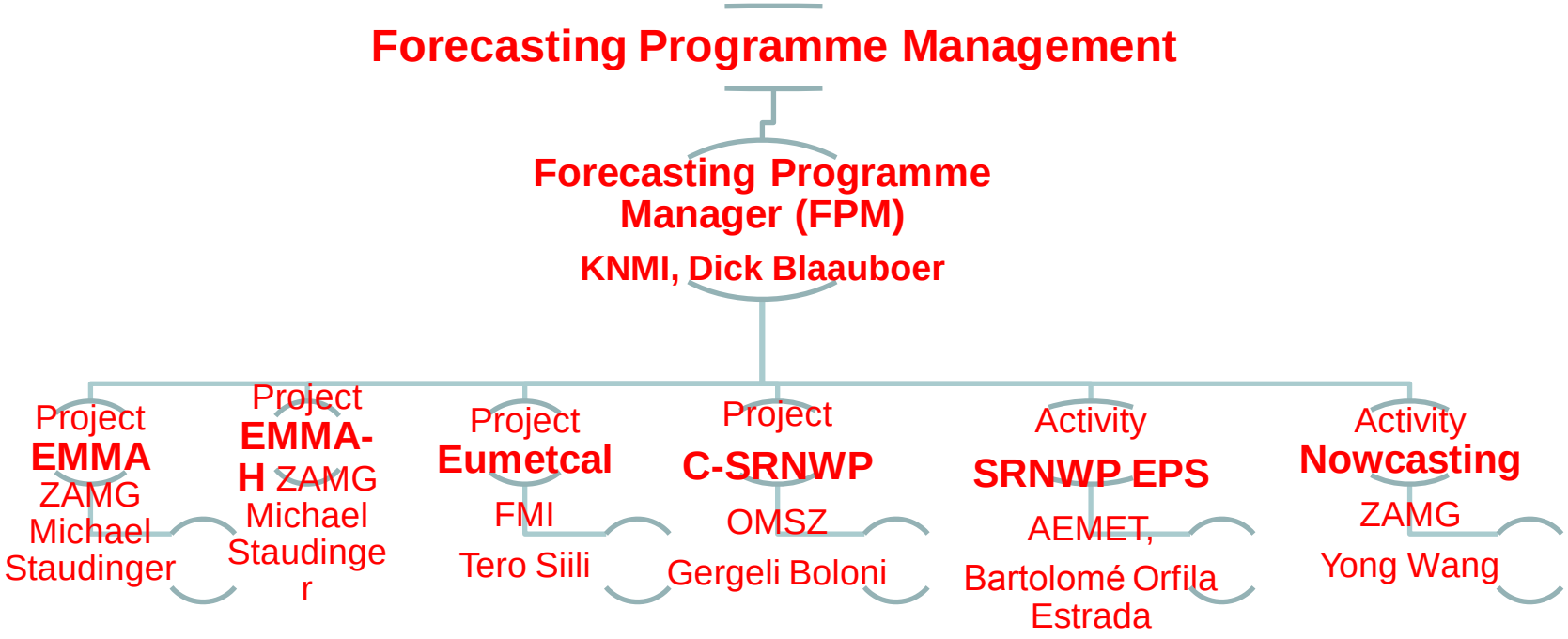
Observations



Climate


Climate Programme Management
CLIMATE Programme Manager (CPM)
KNMI
Gé Verver
Support to Members
Operational Services & Maintenance
ECA&D, E-OBS & PEP725

Forecasting



Forecasting Programme Management

- Introduced in the current programmes phase (no “predecessor”)
- Consistent coordination within the Forecasting Programmes between Projects and Activities
- Close coordination with the Observations Programme which will be aiming towards delivery of higher resolution observational data in order to better support 1 km scale data assimilation systems
- Special emphasis on preparation of SRNWP EPS and Nowcasting projects

Forecasting Programme Management

- user requirements on NWP, extended to Nowcasting and EPS, to be updated ensuring close interaction with training activities and with the support provided to the emergency response community ➔ new Obs Programme performance standards
- training components of the Observations and Climate Capability areas ensured by the EUMETCAL Project
- coordination between the FPM and the Aviation policy area (AVIMET WG that includes the SESAR and WEZARD Programme Managers and the Aviation Affairs Manager) to ensure that emerging aeronautical requirements are properly addressed by forecasting

SRNWP-I 2012: Headlines

- The aim of the Interoperability Programme is to facilitate the exchange of limited area model (LAM) output across Europe. A standard output format (GRIB2) has been agreed and consortia have developed adaptor software that can convert their LAM data to and from the standard format. A software maintenance plan and licensing policy have been agreed and the software is being routinely used by a number of consortia

SRNWP-I 2012: Headlines (2)

- The full implementation of the still missing adaptors, for those grids whose description is available at the end of the program (December 2012), is now primarily a matter of time and resources in the consortia.
- More specifically the achievements of this program should provide any consortium with the necessary input knowledge in order to complete the panel of its grid conversion possibilities if the need arises, for instance in future programmes.

SRNWP-I 2012: Benefits delivery

- All consortia have the following common benefits:
  - trigger for use of GRIB2 in each system
  - specific documentation for all grids and field descriptions as exist in the consortia's NWP systems
  - know-how about building the methods for converting the corresponding gridded fields from one model system to another

SRNWP-Verification End-2012 report - achievements

- Model comparison of 5 consortia models and ECMWF
  - standard verification scores+ publication of results via portal
  - Now full 4 years
- New scores for precipitation forecasts
  - SEEPS(Stable Equitable Error in Probability Space) cf ECMWF (Mark Rodwell et al)
  - DRY/LIGHT/HEAVY categories based on climate at each station
- Extreme dependency scores – rare and high impact weather
- Final reports of outcomes of full 4 year programme in draft
- Cloud and gusts assessed/validated
- Reassessed suitability of OPERA ODYSSEY product quality for verification following QC implementation - better

SRNWP-Verification, Summary of comparison

- Different consortia models have strengths and weaknesses. Clear advantage of LAMs over EC for extreme precip, 10m winds. UM not so good at gusts as COSMO and HIRLAM.

SRNWP EPS Activity

- Starting January 2013, ending June 2014
- Objectives:
  - carrying out a feasibility study in order to prepare a possible Project proposal for cooperation in Europe in the field of LAM-EPS Forecasting
  - Follow on will be decided by Assembly in 2014
- Close link with the Forecasting Programme Manager for effective coordination with relevant EUMETNET Projects

SRNWP EPS Activity

- After EPS-PHY workshop in Madrid, June 2013, four topics have been chosen as possible candidates for the follow-up project:
  1. *Interaction* of *EPS* with *data assimilation* in the convection-permitting scale
  2. *Modelling* and *data assimilation* of ground surface properties
  3. *Accounting* for model *uncertainties* and how EPS could help understanding model sensitivities
  4. *Use* and *interpretation* of *probabilistic products*

SRNWP EPS Activity

- Four Working Groups have been established with the following persons involved:
  - **WG1:** Inger Lise-Frogner (leading), Pau Escriba, Lucio Torrisi, Jelena Bojarova, Trond Iversen, Jonathan Flowerdew
  - **WG2:** Theresa Gorgas (leading), Mihaly Szucs, Yong Wang
  - **WG3:** Alex Dickmyn Leading, Chiara Marsigli, Warren Tennant, Alfons Callado
  - **WG4:** Dick Blaauboer (leading), Henrik Feddersen, Mats Johansson, Juan Simarro, Chiara Marsigli
- The four WGs each described a topic following a fixed template
- ➔ Input and support from WGCEF is very much needed ←

WG1: Interaction of EPS with data assimilation in the convection-permitting scale

- **Purpose**: To further merge the fields of EPS and DA for the convection-permitting scale, to better predict high-impact weather including uncertainty estimates

- **Objectives:** Increase our understanding and competence on how to produce a sufficiently accurate initial analysis including estimation of its uncertainty that enables a *timely production* of reliable probabilistic prediction for the convection-permitting scales

- **Deliverables**: A better assessment of the potential of an EnDA system for useful and reliable operational probabilistic predictions on convection-permitting scales.

WG2: Modeling and data assimilation of ground surface properties

- **Purpose**: Addresses the uncertainties related to surface and soil properties and their relevance for convection-permitting EPS. Wg2 aims at identifying those parameters which are relevant for influencing convection from a predictability point of view, and at finding ways to simulate their uncertainty in an efficient way
- **Objectives:**
  - Ensemble data assimilation of surface/soil property data in close collaboration with Wg1
  - Perturbation of soil scheme parameters
  - Involve uncertainty of land use data in the perturbations
- **Deliverables**: Enhanced knowledge about the impact of different soil and surface properties on forecasts. Software routines for the proper design of ensemble perturbations for these properties

WG4: Use and interpretation of probabilistic products

- **Purpose**: Ensemble forecasts are able to fullfil the needs of a range of applications, from forecasting to specific applications like civil protection, aviation, energy market. Cooperation in Europe in the field of ensemble products definition, preparation and visualisation will enable to answer the needs of the users which require transnational applications
- **Objectives:** Provide the best possible support, uniform all over Europe, for specific operational applications. Define user needs, both from forecasters and end users, develop generic products that can be derived from standard EPS output
- **Deliverables**: Transnational generic ensemble products which are defined in a generic way and visualised in a generic format, tailored for the specific applications

SRNWP EPS Activity: next steps

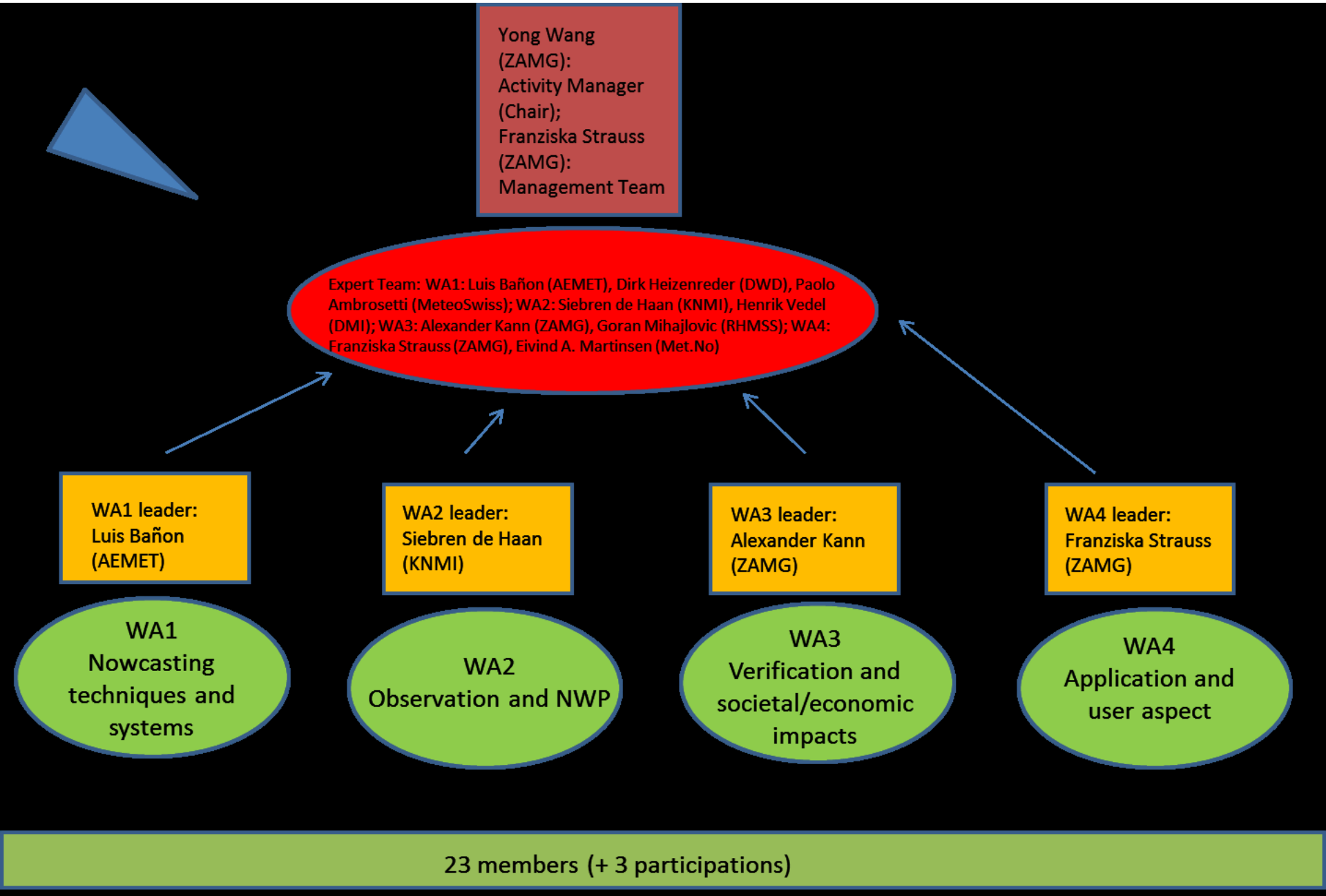
- Agreement within SRNWP EPS which are the relevant topics for follow-up project: WG1-4, others?
- Proposal to STAC, 13-14 October, asking for approval of road map to follow, suggestions, comments
- Relation with Nowcasting follow-up project: anticipating STAC questions

NOWCASTING Activity

- Starting January 2013, ending June 2014
- Objectives:
  - carrying out a feasibility study in order to prepare a possible Project proposal for cooperation in Europe in the field of Nowcasting
  - Follow on will be decided by Assembly in 2014
- Close link with the Forecasting Programme Manager for effective coordination with relevant EUMETNET Projects

NOWCASTING plan highlights

- Enhancing cooperation establishing an Expert Team
- Carring out for the operational nowcasting systems in Europe:
  - overview
  - assessment
- Encouraging Members' exchange of nowcasting elements:
  - scientific methods, data pre-processing and QC techniques
  - verification and application software
- Identifying requirement for observation systems:
  - surface networks
  - profilers, weather radar, satellite based, …
- Preparation of a Project proposal to be submitted to EUMETNET bodies by end of June 2014


Yong Wang (ZAMG): Activity Manager (Chair); Franziska Strauss (ZAMG): Management Team
Expert Team: WA1: Luis Bañon (AEMET), Dirk Heizenreder (DWD), Paolo Ambrosetti (MeteoSwiss); WA2: Siebren de Haan (KNMI), Henrik Vedel (DMI); WA3: Alexander Kann (ZAMG), Goran Mihajlovic (RHMSS); WA4: Franziska Strauss (ZAMG), Eivind A. Martinsen (Met.No)
WA1 leader: Luis Bañon (AEMET)
WA2 leader: Siebren de Haan (KNMI)
WA3 leader: Alexander Kann (ZAMG)
WA4 leader: Franziska Strauss (ZAMG)
WA1 Nowcasting techniques and systems
WA2 Observation and NWP
WA3 Verification and societal/economic impacts
WA4 Application and user aspect
23 members (+ 3 participations)

Developments important for C-SRNWP

- Observations and NWP: RUC ➔ Nowcasting NWP approach
- Obs Programme focussing on smaller scales: new performance standards
- New obs: Mode-S, AMDAR humidity, high res. radiosoundings (BUFR), GPS (integrated hum.), GSM (precipitation)
- 3rd EUMETNET Meeting of Heads of Forecasting, Warsaw (?), Spring 2014
    - One day forecasting, one day management issues
    - Theme: “Operational use of EPS and production of probability forecasts”

Thank you!

Contact Details

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