GMOS TRAIN

MSCA ITN
Global Mercury Observation Training Network

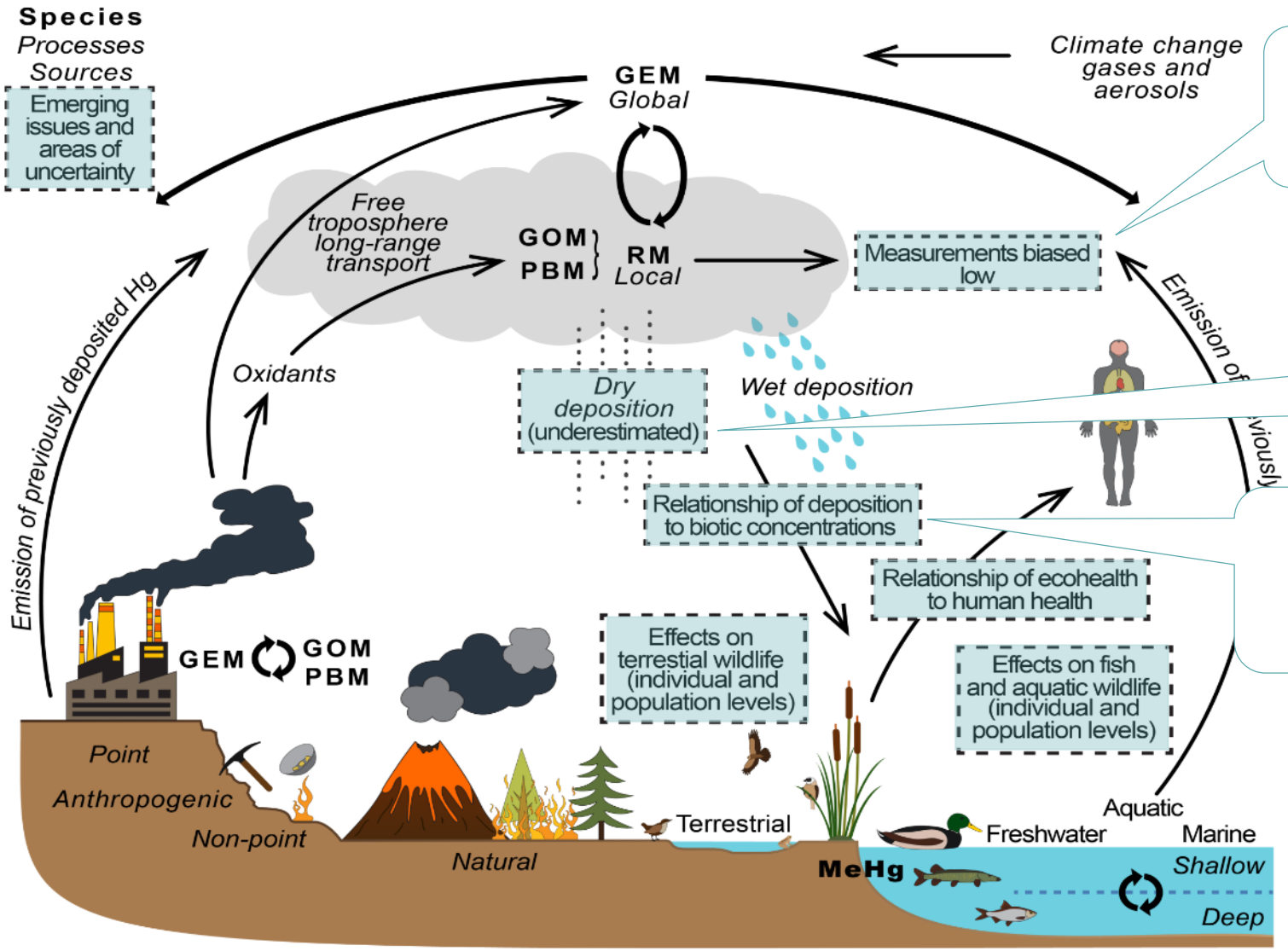
in Support to the Minamata Convention

Prof. Dr. Milena Horvat
GMOS-Train Coordinator
www.gmos-train.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement no. 860497.

MIZŠ, Information day, 3.5.2021

Knowledge gaps



Measurements biased low

Dry deposition underestimated

Relationship of deposition to biotic concentrations

Adopted from Gustin et al. 2016. EST

Policy Background

- Horizon 2020 - EU Research and Innovation programme for the years 2014-2020.
- Three pillar structure:

Excellent Science	Industrial Leadership	Societal Challenges
• European Research Council • Future and Emerging Technologies • **Marie Skłodowska-Curie Actions (MSCA)** • Research Infrastructures	• Leadership in Enabling and Industrial Technologies • Access to Risk Finance • Innovation in SMEs	• Health, Demographic change and Wellbeing • Food Security • Transport • Energy • Climate action • Europe in a changing world • Secure societies

Marie Skłodowska-Curie Actions (MSCA)

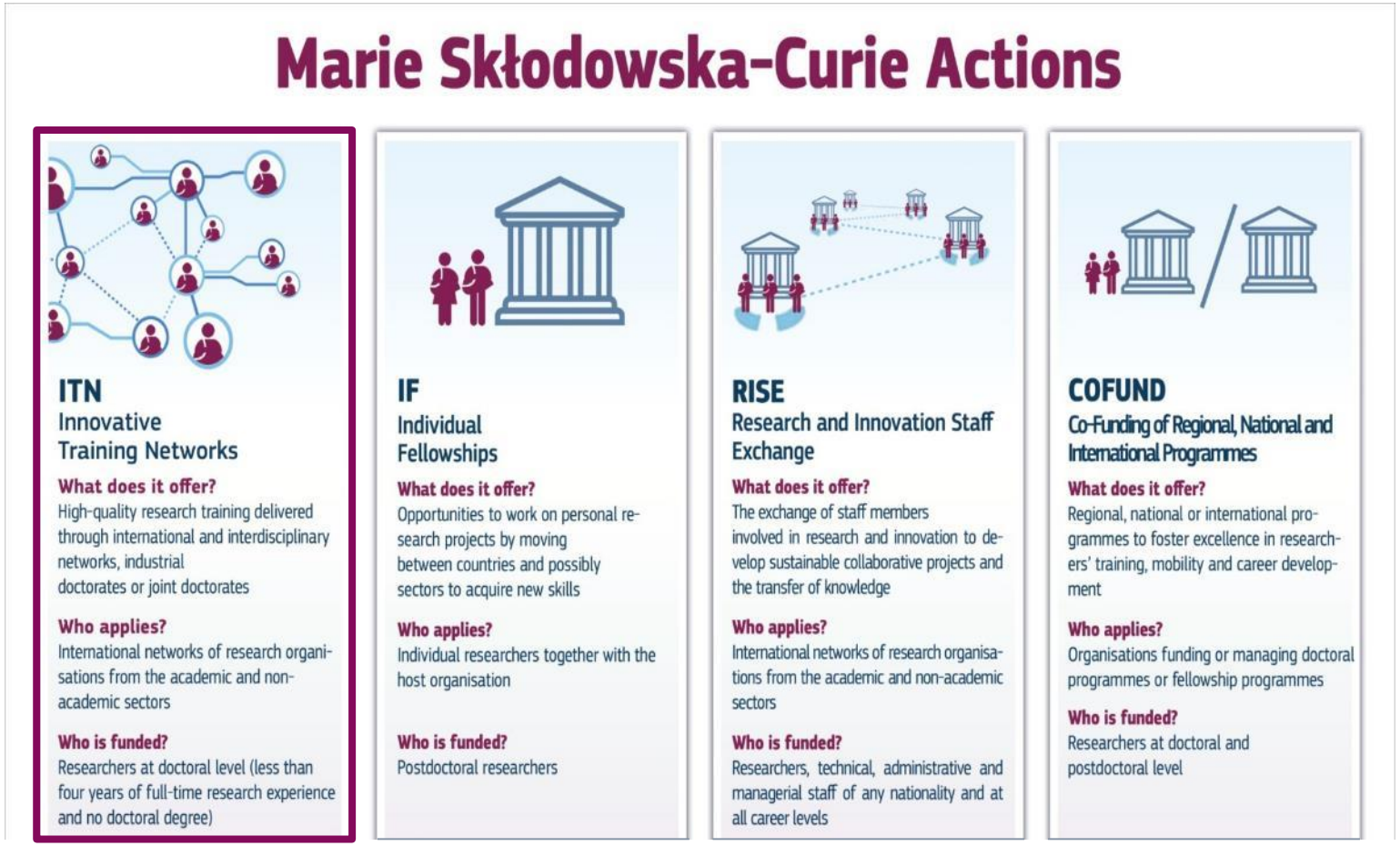
*Fostering new skills through **excellence** in initial training of researchers*

*Nurturing excellence through cross-border and cross-sector **mobility***

*Stimulating **innovation** through cross-fertilisation of knowledge*

*Increasing structural impact by **co-funding activities***

Specific support and policy action



.....process .....

IsoFood ERAChair project

4-6- April, 2016, Ljubljana

IsoFood ERAChair Workshop "*Mercury speciation: advancing our understanding of the global mercury cycle in relation to food and human exposure"*

1st submission of the proposal,
January 2017
Score 93.7/100

2nd submission of the proposal
January 2018
Score. 81.6/100

3rd submission of the proposal
January 2019
Score 100/100

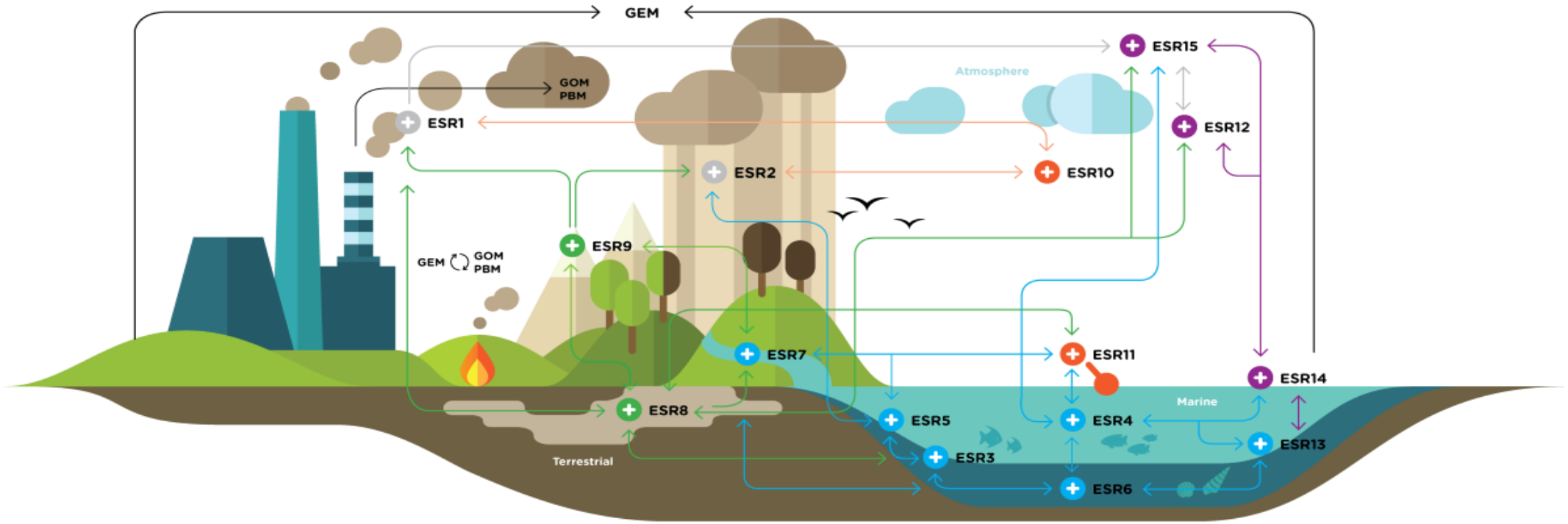
15 Early Stage Researchers

Global biogeochemical Hg Cycle

www.gmos-train.eu

The overall objectives are:

1) to provide urgently needed training in Hg science within the context of the UNEP Minamata Convention
2) to fill key knowledge gaps in biogeochemical Hg cycling linking anthropogenic emissions and Hg in marine food webs



Legend 1

- WP1 (ESRs 1-2) Atmospheric processes
- WP2 (ESRs 3-7) Marine processes
- WP3 (ESRs 8-9)Terrestrial-land-water systems
- WP4 (ESRs 10-11) Traceability & sensors
- WP5 (ESRs 12-13) & WP6 (ESRs 14-15) Modeling

Legend 2

ESR1	Oxidants and RM
ESR2	Kinetics/deposition/re-emission
ESR3	C/H/Hg compound specific analyses
ESR4	Ocean speciation/cruises
ESR5	Coastal dynamics Methylation/demethylation
ESR6	Lower food web
ESR7	Land water interactions
ESR8	Permafrost
ESR9	Terrestial/canopy
ESR10	Traceability/comparability
ESR11	Sensors
ESR12	Regional models
ESR13	Ecosystem model
ESR14	Ocean/atmosphere exchanges
ESR15	Global models

9

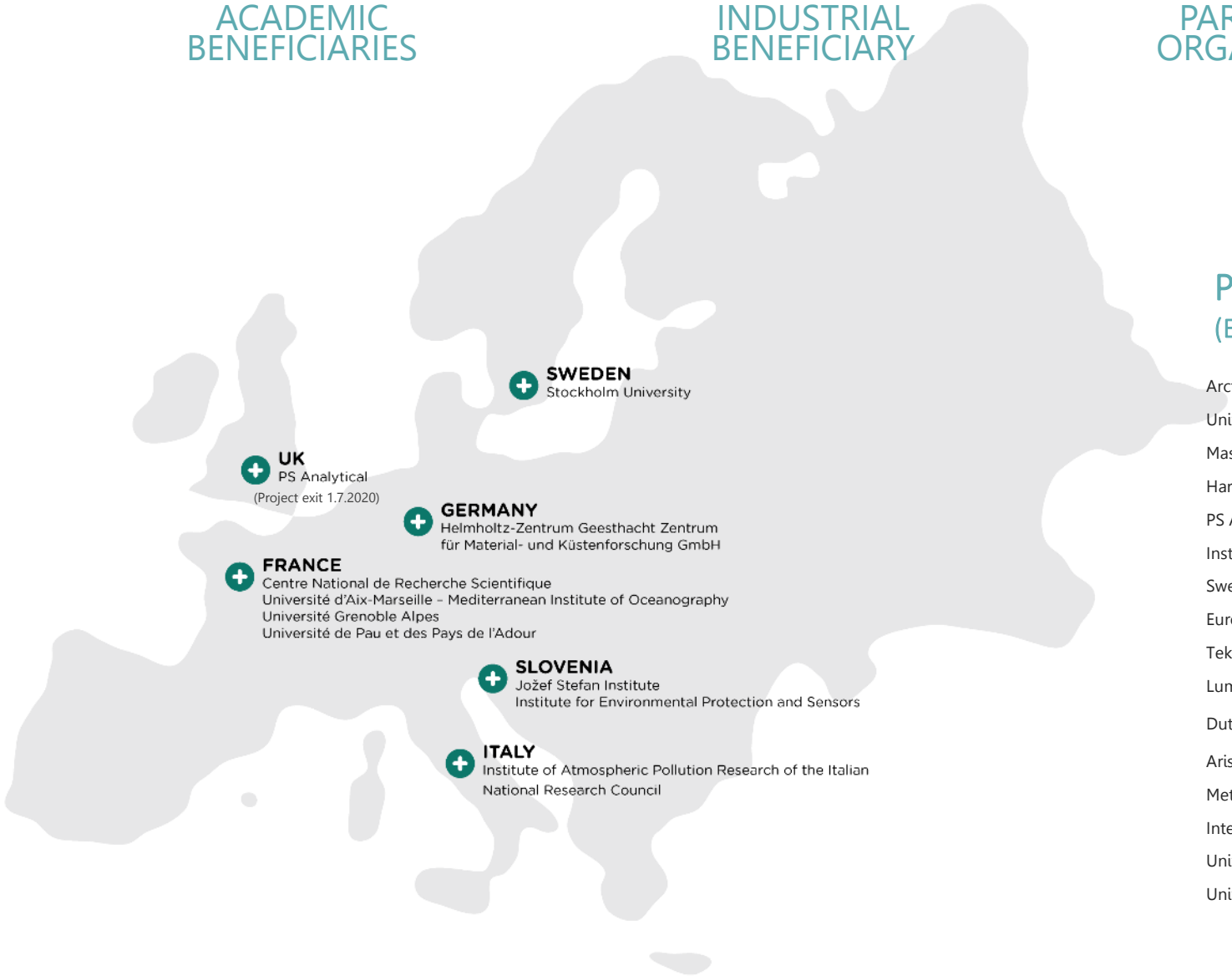
ACADEMIC BENEFICIARIES

1

INDUSTRIAL BENEFICIARY

16

PARTCIPATING ORGANISATIONS



Participating Organisations
(ESRs secondments)

Arctic Monitoring and Assessment Programme	AMAP	Norway
United Nations Environmental Programme	UNEP	Switzerland
Massachusetts Institute of Technology	MIT	USA
Harvard University	Harvard	USA
PS Analytical	PSA	United Kingdom
Institut de Recherche pour le Développement	IRD	France
Swedish Polar Research Secretariat	SPRS	Sweden
European Environmental Bureau	EEB	Belgium
Tekran	Tekran	Canada
Lumex	Lumex	Germany/Russia
Dutch National Standard Laboratory	VSL	The Netherlands
Aristotle University of Thessaloniki	AUTH	Greece
Meteorological Synthesizing Centre – East of EMEP	MSC-E	Russia
International Postgraduate School Jožef Stefan	IPSJS	Slovenia
Université Paul Sabatier	UPS	France
Université Bretagne Loire	UBL	France

GMOS TRAIN

Recruitment of ESRs

Project start date: 1. January, 2020
Call for ESRs: January 2020
Application dead-line: 30. March, 2020
No. of applicants: 187
ESRs selected: June 2020
ESRs admitted to PhD studies: October, 2020
Kick-off meeting: 7-9 December, 2020
Official recruitments: August, 2020 to February 2021

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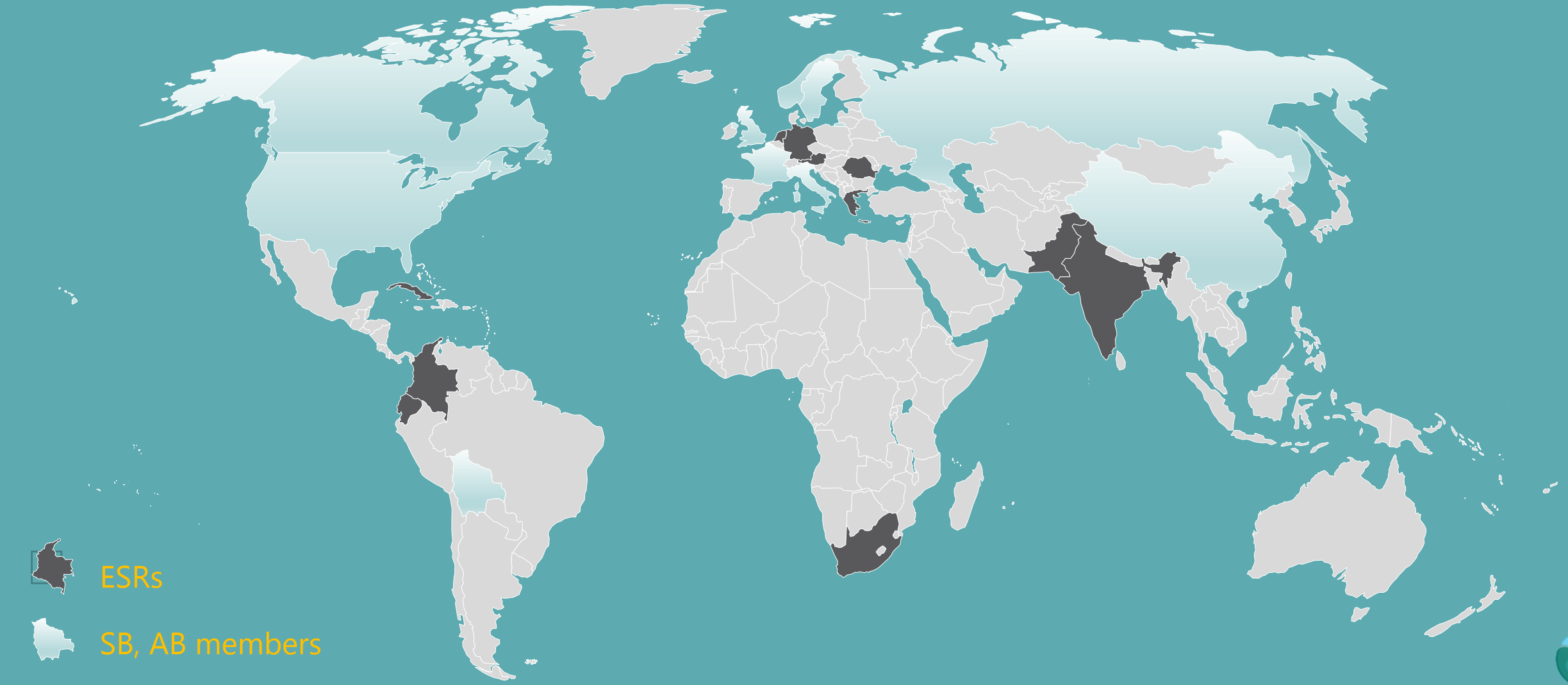
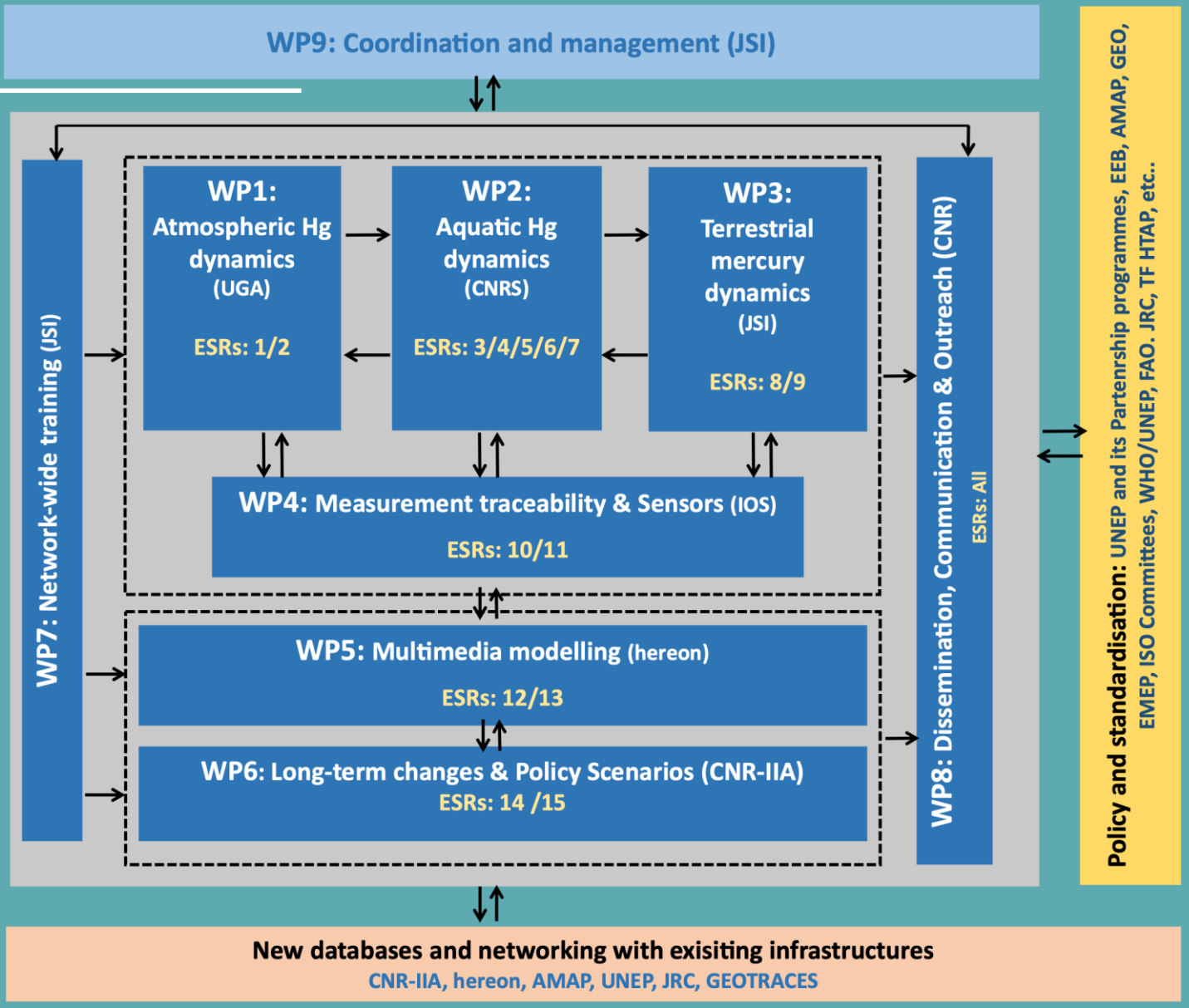
15 ESRs and SB, AB from all over the world



WP structure and interlinkages



WP1: Atmospheric processes (ESR1 + ESR2)

Alkuin Maximilian Koenig

Understanding atmospheric Hg redox transformations from novel field observations and 3D atmospheric Hg models.

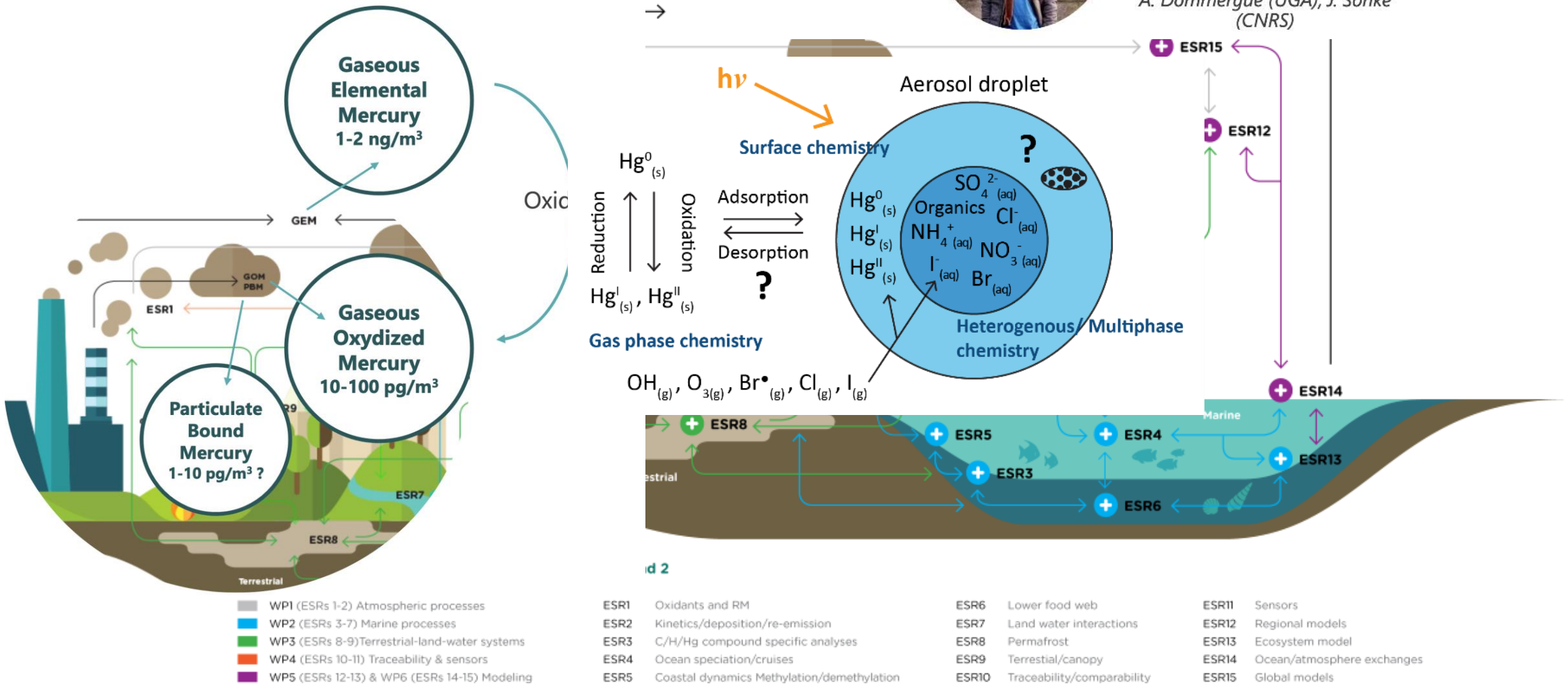
Aurélien Dommergue (UGA), Jeroen Sonke (CNRS)

Sreekanth Vijayakumaran Nair

New experimental constraints on atmospheric Hg red-ox reactions.

Prof. Dr. Milena Horvat (JSI)

A. Dommergue (UGA), J. Sonke (CNRS)



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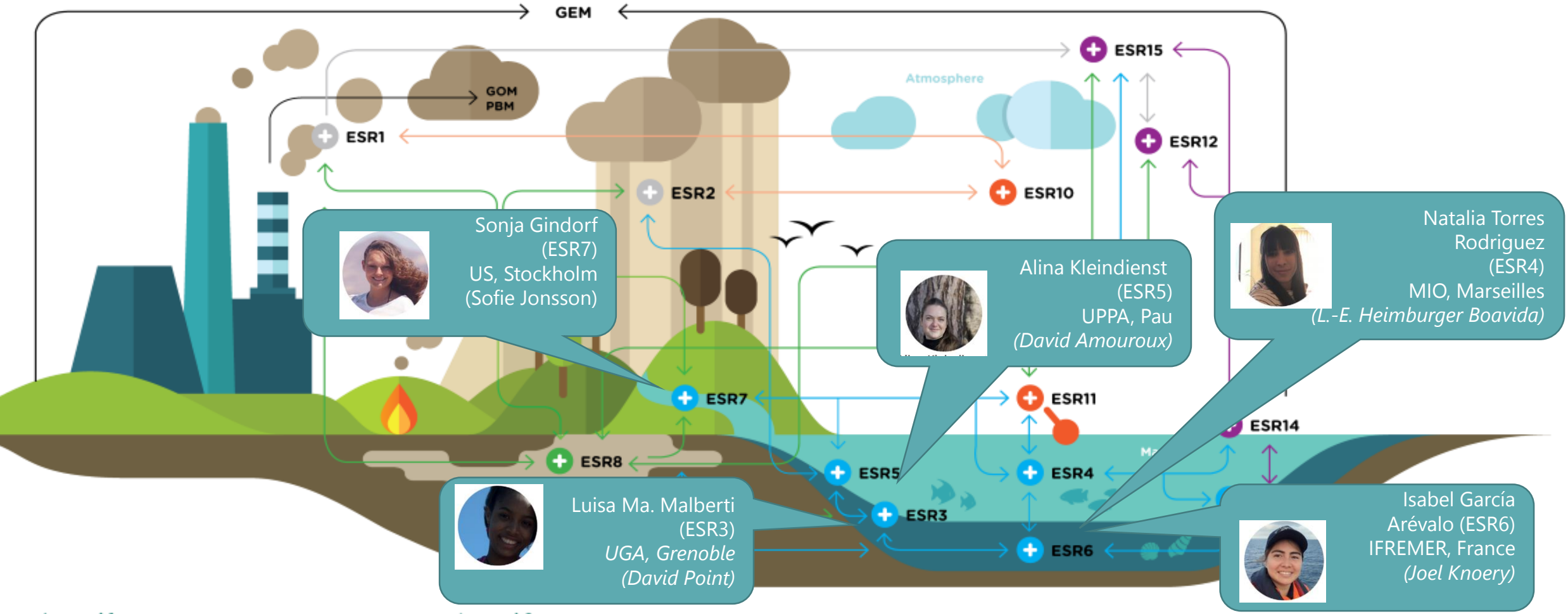
WP 2: Marine mercury dynamics



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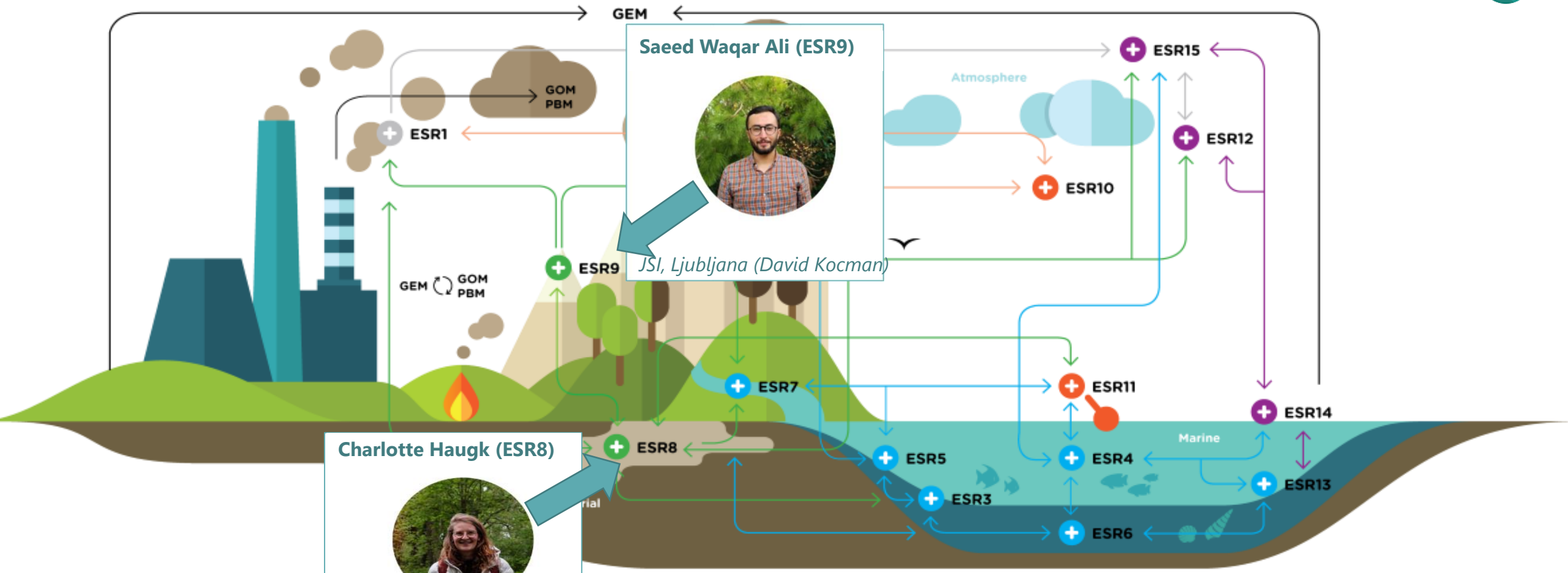
WP 3: Terrestrial dynamics (ESR8, ESR9)



Saeed Waqar Ali (ESR9)

JSI, Ljubljana (David Kocman)

Charlotte Haugk (ESR8)

SU, Stockholm (Sofi Jonsson)

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2

	Oxidants and RM
	Kinetics/deposition/re-emission
ESR3	C/H/Hg compound specific analyses
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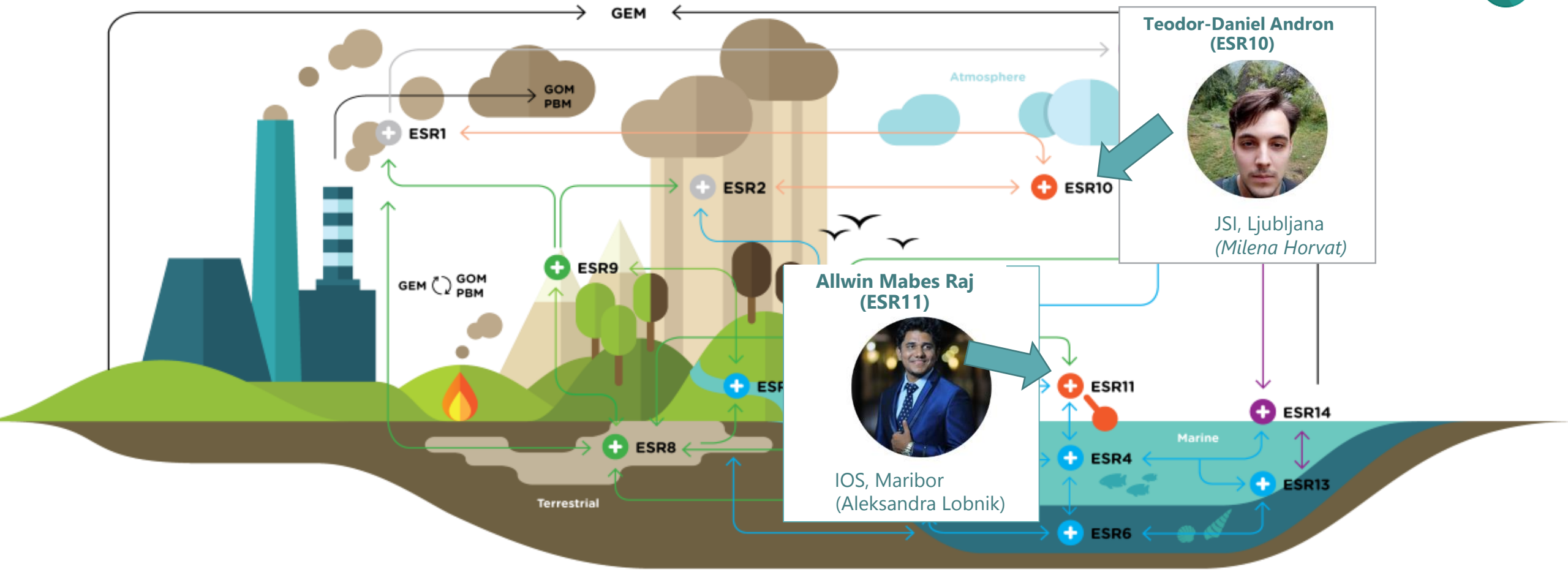
WP 4: Traceability & sensors



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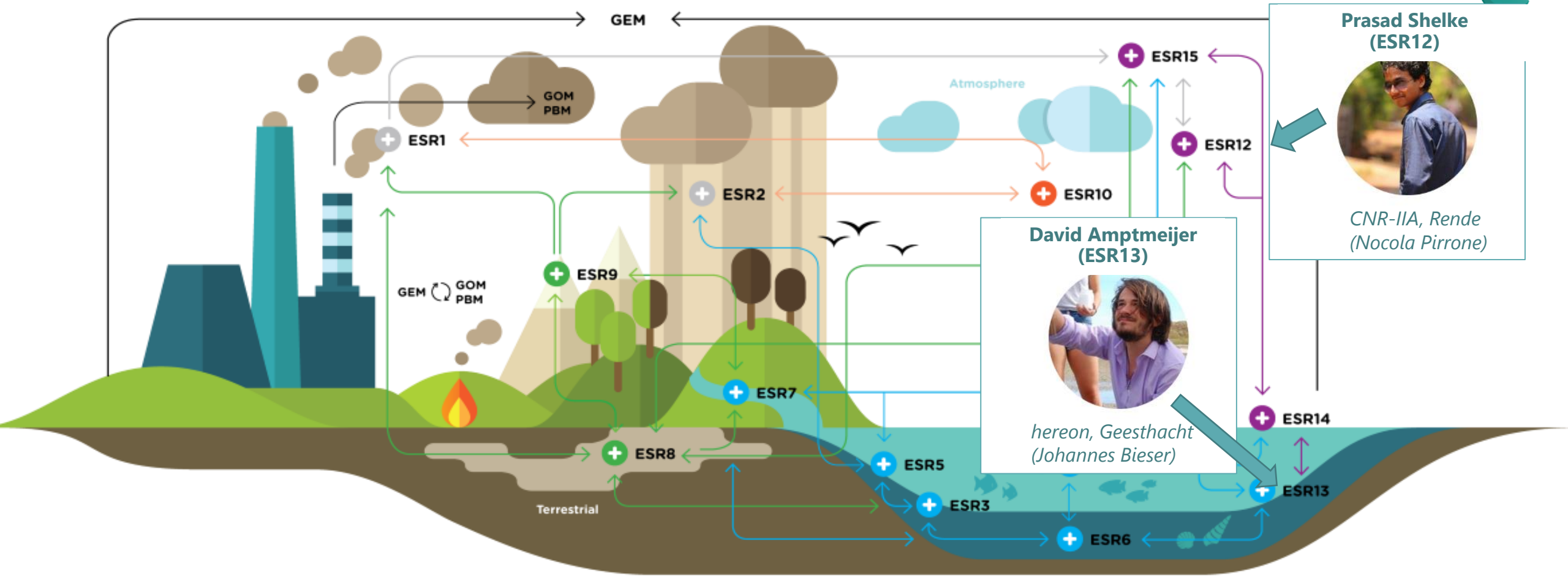
WP 5: Multimedia modeling



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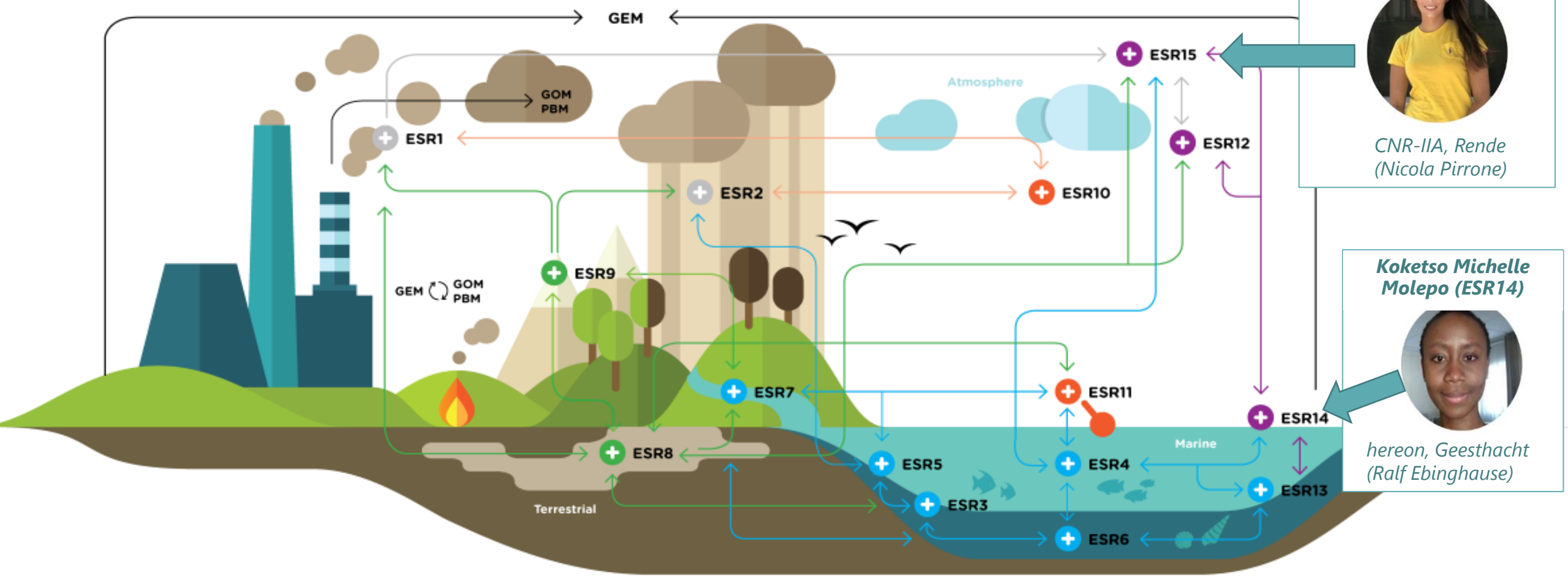
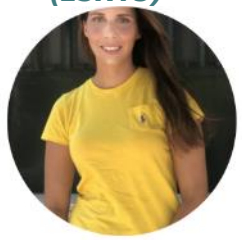
WP 6: Long-term changes and policy scenarios



Charikleia Gournia (ESR15)



CNR-IIA, Rende (Nicola Pirrone)

Koketso Michelle Molepo (ESR14)

hereon, Geesthacht (Ralf Ebinghause)

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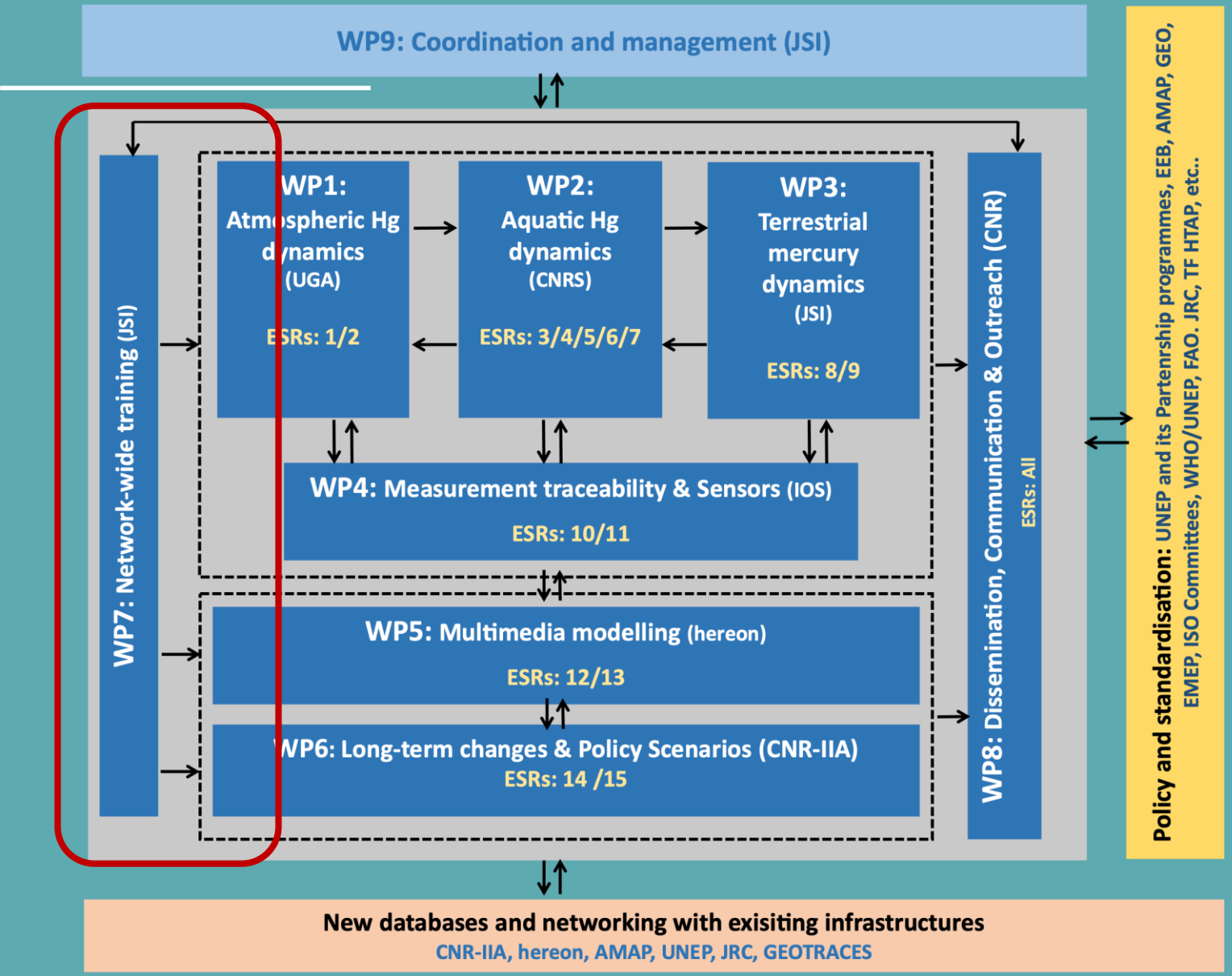
WP structure and interlinkages



WP7 Training

Local training

- **Local PhD course**
  - Research skills
    - Science based, data evaluation, modelling, data mining, sampling, analytical methods, QA/QC procedures, standardisation, etc.…
    - From science to policy making, etc…
  - Complimentary/soft skills
    - Paper writing, project writing
    - Language
    - Team work, management, teaching
    - ….

Network-wide

- **Agreed in the Annex 1**
  - Secondments
  - Summer and winter schools
    - science based training
    - soft skills training
    - …..

Modified training programme –
New plan (agreed by the SB and PO in November 2020)

Summer School 1. *"Metrology in mercury measurements" (Sept. 2021)*
Soft skills training: Scientific writing, oral and poster presentations (CNRS); communicating science to general public and policy stakeholders, Open access.

Winter School 2. ERCA (Jan. Feb. 2022)

Winter School 3. *"Global mercury modelling framework and policy making" (Jan. 2023)*
Soft skills training: Project proposal writing. Part 1. MCSA IF writing

Closing meeting: *(Dec 2023)*
Event: A *Science Slam* and *Job fair* will be organized.

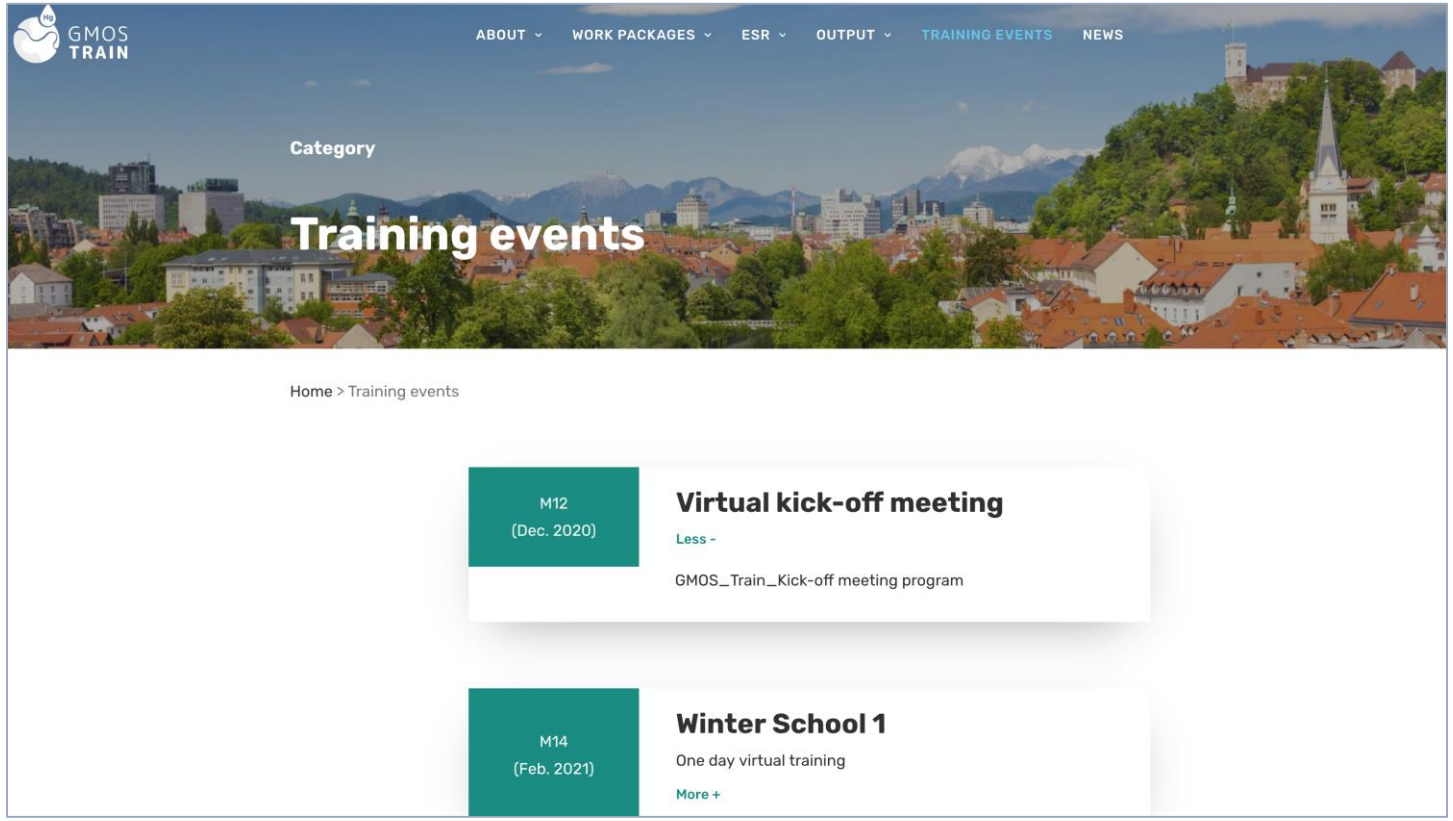
2020 | M14 | 2021 | M18 | M24 | M25/26 | 2022 | M31 | M37 | 2023 | M42/43 | M42

Winter School 1. *Global mercury assessment (Feb. 2022)*
Soft skills training: Responsible research, ethics, IPR, EDI principles followed in this initiative (equality, diversity, inclusion)

Midd-term review

ICMGP 2022 (Jul. 2022)
Communication skills: Pre-Conference presentation practice in an informal atmosphere

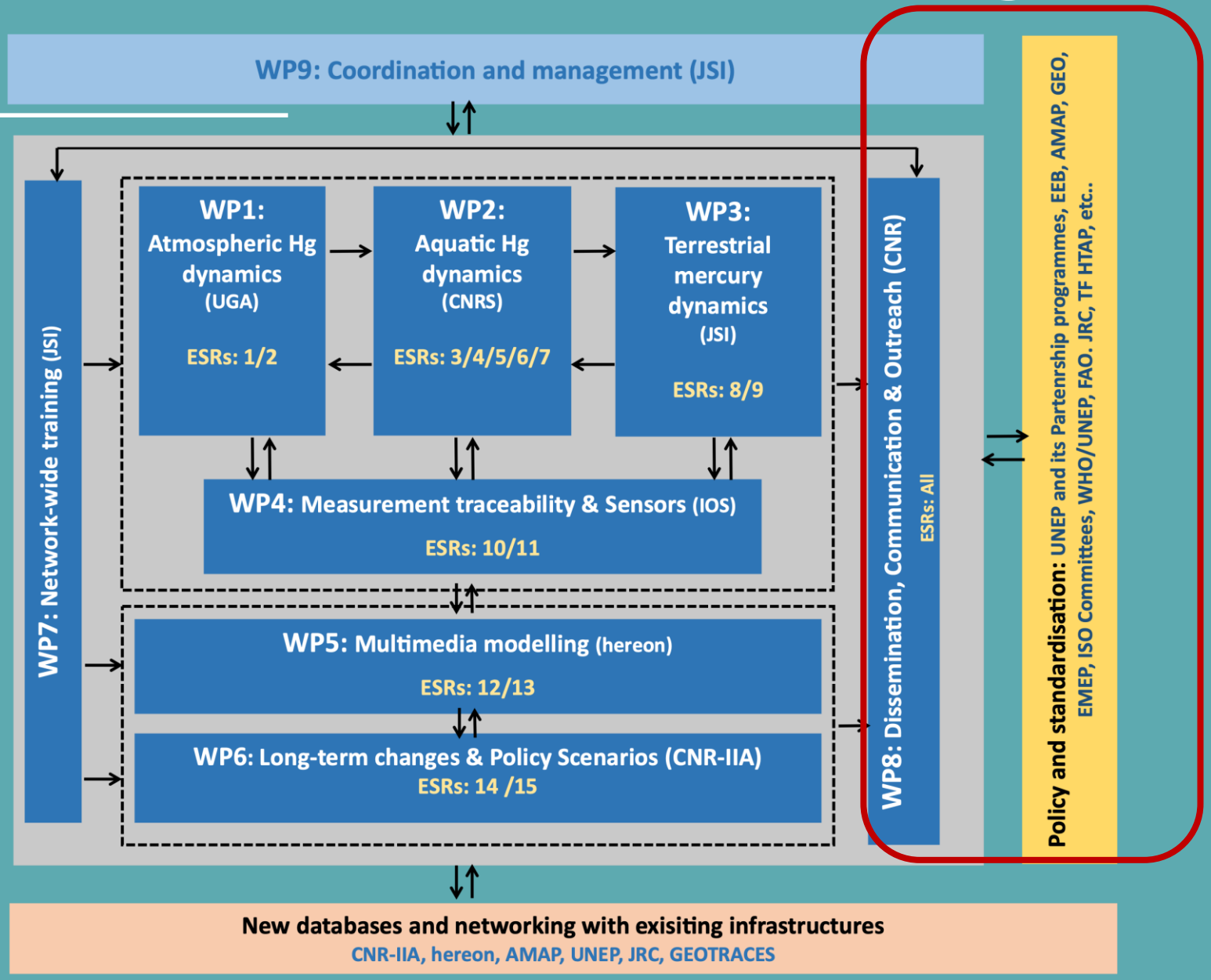
Summer School 2. *Mercury exposure and health (Jun/July 2023)*
Soft skills training: Project proposal writing. Part 2. ESRs will present their project proposal MCSA IF, which will be cross-evaluated by ESRs and SB members.



To be continuously checked for timing and changes ….

https://www.gmos-train.eu/work-packages/wp-content/training/

WP structure and interlinkages



Linkages to international frameworks:

- UNEP Partnership programme
- GEO Flagship GOS4M
- UNEP MC – Effectiveness evaluation
- ERA-Planet (IGOSP, Icube)
- GEO/COPERNICUS
- .....

Direct outputs:

- 15 PhDs
- 35 SCI papers
- 3 Policy briefs
- 2 Videos
- New data in GMOS database
- Standardized protocols
- New biosensors
- ..... more on www.gmos-train.si

THANK YOU

www.gmos-train.eu

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Jožef Stefan Institute, Ljubljana, Slovenia