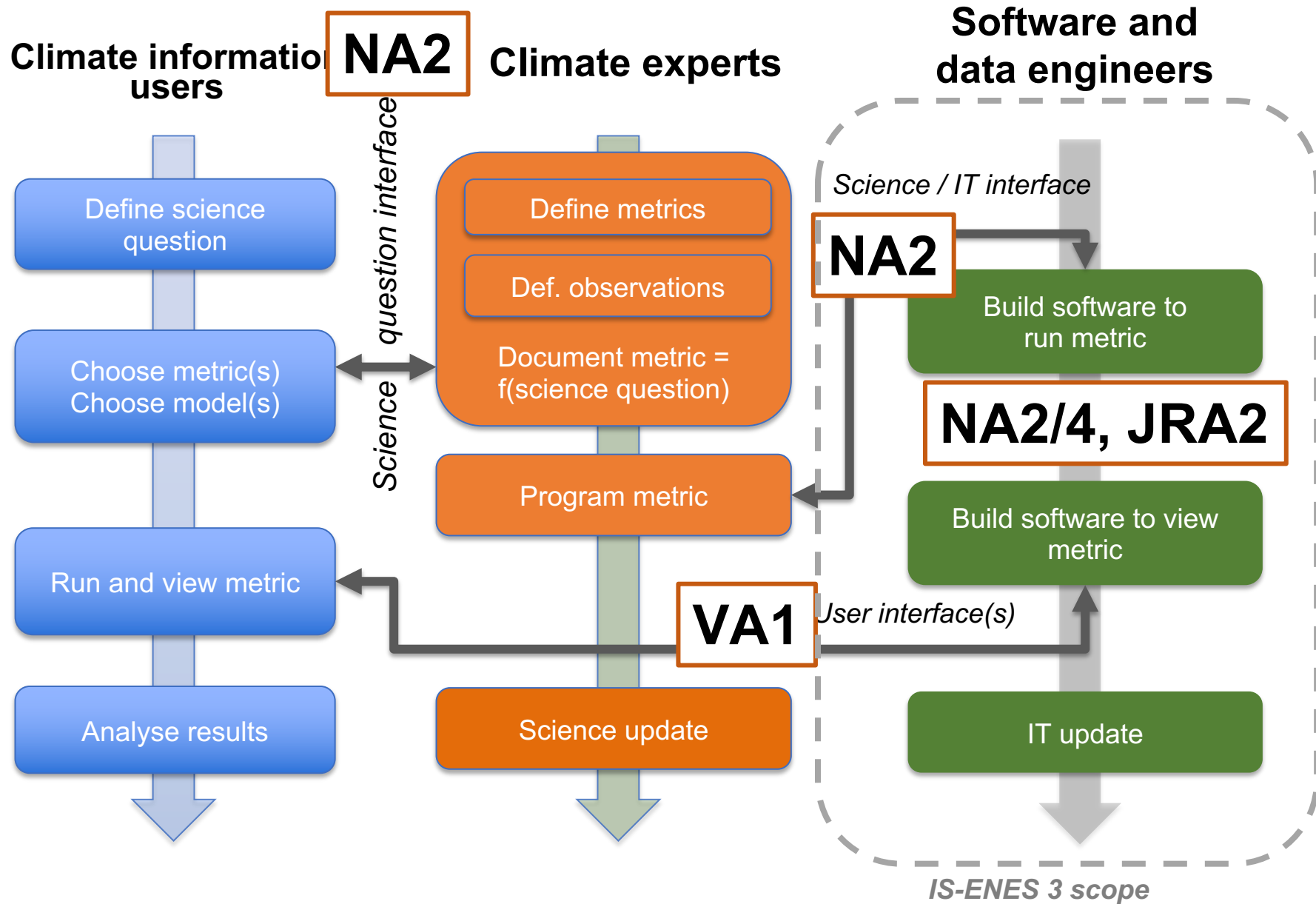# WP3-NA2

# IS-ENES3 NA2
# Model evaluation tasks

Eric Guilyardi (IPSL), Yann Planton (IPSL), Kim Serradell (BSC), Javier Vegas-Regidor (BSC), Björn Brötz (DLR), Jérôme Servonnat (IPSL),

# Model evaluation in IS-ENES3

# WP Tasks

## Task 3: Community standards

STFC (2 PM), KNMI (3 PM), CNRS-IPSL (6 PM), DLR (4 PM), DKRZ (1 PM), UREAD-NCAS (2 PM), UC (2PM), CERFACS (1 PM), Total 21 PM

- Task 3.1 Advancing existing community standards via workshops (Vocabularies and standards for CMIP, data standards for climate indices, CF)
- **Task 3.2: New standard on scientific provenance of model evaluation**

## Task 4: User feedback and requirements

KNMI (2 PM), CNRS-IPSL (8 PM), BSC (1 PM), STFC (2 PM) CERFACS (1 PM), UREAD-NCAS (4 PM), DLR (1 PM), Total 19 PM with subcontracting

- Task 4.1: Project wide user requirements (data, models, tools)
- **Task 4.2**: Specific user requirements (**model evaluation survey**, CMIP documentation – ES-DOC)

## Task 3.2: New standard on scientific provenance of model evaluation = « science / IT interface »

Use CLIVAR ENSO metrics pilot effort as a starting point

- Used PMP as driver

- Documented interface (done by Yann in code and on github + paper in revision in BAMS)

- Started exploration of ENSO metrics integration in ESMValTool (Javier)

- Both physical (NA2/T3.2) and technical (NA4/T5) considerations to be explored

# Model evaluation survey (T4.2)

- The goals, scope and outcomes discussed in several meetings (Barcelona, March 2019 + 3 telcos)
- Priority stakeholders are defined in terms of sustainability after IS-ENES3: modeling centres, Copernicus (and EQC), technical centres (ESGF, super nodes,...)
- Scoping process will also identify organised end user forums, the private sector, and other stakeholders, in order to ensure the survey is wide ranging.
- The work plan proposed by Assimila is in broad agreement with these goals and the contract is being established (40 k€ via NCAS).

- Time line - because of the late set up of the survey, several tasks need to be delayed:
  - D3.1, the survey deliverable to June 2021
  - D5.2 to fall 2021
  - The JRA developments

# WP5-NA4

## Work progress - Main achievements

- *Task 5: Technical standards and an architecture for plugin diagnostic tools*

*Partners: BSC, CNRS-IPSL, DLR, NleSC*

*Objectives:*

- *Define the requirements for a fast and scalable evaluation workflow that meets the requirements of ESM developments over the next decade, by means of a workshop with community members (postponed spring 2021 due to delay on the survey).*
- *Define the technical architecture required to plug other diagnostic packages to existing evaluation software frameworks (D5.2) (postponed september 2021)*
- *Develop a framework for coding standards, which will be defined to improve code integration, code distribution between developers, reusability, maintenance and readability*

*Current work:*

- *Run the ENSO IPSL metrics inside ESMValTool for a small test. We are now trying to improve it further, as the first test is not using any of ESMValTool capabilities outside the most basic data ones: find and check.*
- *The GFDL cyclone tracker can be run using a recipe developed for PRIMAVERA and it is on its way to the trunk https://github.com/ESMValGroup/ESMValTool/pull/1369*
- *Updating the version of CVDP used by ESMValTool https://github.com/ESMValGroup/ESMValTool/pull/1441*

# WP6-VA1

## Work progress - Main achievements

Task 3: Services for European infrastructure tools

ESMValTool Active User Service (AUS)

- Common KPIs for models and tools:
  (Released versions, active contributors, issues, mails/messages)

- Biannual reporting
  - **Q1+2/2019**: 1 released version, 27 contributing developers,
    76/123 opened/closed issues, ca. 80 mails
  - **Q3+4/2019**: 8 released versions (Tool+Core), 35 contributing developers, 110/193 opened/closed issues,
    ca. 5000 mails/messages

- Specific ESMValTool service actions:
  - Available on github
  - Sphinx documentation (readthedocs.io)
  - Tutorials
  - FAQs
  - Personal support

**Debriefing from WP6**

*Eric Maisonnave (CERFACS) Uwe Fladrich (SMHI)*

**Work progress - Main achievements**

IS-ENES3 1st General Assembly
25-27th March 2020
*Toulouse, France*

Task 3: Services for European infrastructure tools

ESMValTool Active User Service (AUS)

- **Code** available at:
    - https://github.com/ESMValGroup/ESMValTool
    - https://github.com/ESMValGroup/ESMValCore
- **Documentation** available at:
    - https://esmvaltool.readthedocs.io/
- **Installation** via conda:
    - https://anaconda.org/esmvalgroup/esmvaltool
    - https://anaconda.org/esmvalgroup/esmvalcore
- **Issues** available at:
    - https://github.com/ESMValGroup/ESMValTool/issues
- User interaction with site specific **mailinglist** & email contact with developers
- **Tutorial** under development by the NL-eScience center (NLeSC):
    - https://github.com/ESMValGroup/tutorial (under development) development version online at https://esmvalgroup.github.io/tutorial/
    - Tutorial scheduled for the EGU 2020

## Work progress - Main achievements

*Deliverables and Milestones: indicates the delayed ones, and the next ones to completed before RP1*

- **D6.1** First periodical report on service statistics for models and tools (M18)
(**on time**, all KPIs and reports for ODUS completed)

- **M6.2** Reviewer for services appointed (M18)
(**to be discussed** at the GA)

## Next steps with focus on key issues to be addressed

*Next steps and issues to be addressed*
- Periodical reports
- Services review
- Update ENES Portal -- include ESMValTool?!

# WP7-VA2

**Work progress - Main achievements**

# *Significant results and activities for each task, including deviations from Description of Activities:*

- **Task 1 ESGF data dissemination, long term archival, user support - VA**
  - *User support documentation maintenance and migration to github*
  - *Operational CMIP6 and CORDEX data publication and data ingest support (including QA), CMIP6 data citation support*
  - *Coordination of ESGF operations (CDNOT)*
  - *ESGF/CMIP6 statistics collection*
  - *Organization and Preparation of (new) CORDEX user support documentation*

- **Task 2 Compute services – VA – access to derived data products and data processing web services**
  - *ESMValTool evaluation result distribution via pre-operational service (https://cmip-esmvaltool.dkrz.de)*
  - *new C4I deployment (ADAGUC server and WPS services) on the KNMI AWS cloud environment*
  - *WPS processing test services deployed at CMCC, DKRZ (based on Birdhouse WPS environment)*

**Next steps with focus on key issues to be addressed**

## *Next steps and issues to be addressed by the end of RP1 (mo18 – June 2020)*

- *Improvement of TNA call dissemination and attraction of new users
  (activities started – various activities planned including webinars and
   testing/evaluation access possibilities to TNA resources )*
- *ES-DOC guidance to clarify after Sébastien Denvil left IPSL.*
- *Collection of service statistics etc. for reporting (KPIs,TNA and overall)*

## *Next steps and issues to be addressed during RP2 (July 2020 - Dec 2021)*

*Compute services (VA)*

- *Operational deployment of ESGF compute web services at ESGF centers (DKRZ, IPSL, CEDA)*
- *Agreement on (initial) compute service functionalities and functionality roadmap for the future (together with data NA and JRA)*
- *Integration of WPS compute services with climate4impact*
- *ESMValTool compute service(s): operationalization, integration of viewer in C4I portal*
- *First external review*

**Work progress - Main achievements (page 2)**

## *Deliverables and Milestones: indicates the delayed ones, and the next ones to completed before RP1*

*Done:*

- *M7.1 ENES CDI help desk, (mo8, Aug 19)*

*Delayed:*

- *M7.2 setup of review committee and user selection panel (mo12, dec 2019)*

*Next:*

- D7.1 1st KPI and TNA report for ENeS CDI services (mo18, june 2020)

# WP9-JRA2

# Debriefing from WP n°9

*Bjorn Brotz and Kim Serradell*

## Work progress - Main achievements

*Significant results and activities for each task, including deviations from Description of Activities:*

- **Task 1: Coding Workshops and Coordination of ESMValTool activities**
  - *IS-ENES3 workshops organised:*
    - *Technical ESMValTool coding workshop, October 2019, Germany (DLR)*
    - *Technical ESMValTool coding workshop, June 2019, Germany (DLR),*
    - *ESMValTool backend coding workshop, February 2019, Germany (DLR)*

- **Task 2: Technical Improvements of the ESMValTool**
  - *Continuous development of the ESMValTool documented online at:*
    - *https://github.com/ESMValGroup/ESMValCore*
    - *https://github.com/ESMValGroup/ESMValTool*
  - *Article on the technical improvements: Righi et al., ESMValTool v2.0 Part 1: Technical overview, GMD, 2019, accepted https://www.geosci-model-dev-discuss.net/gmd-2019-226*

- **Task 3: Data preprocessing and reformatting**
  - *Enhancement of reformat scripts in ESMValTool v2.0.*

# Debriefing from WP n°9

*Bjorn Brotz and Kim Serradell*

## Work progress - Main achievements (page 2)

*Significant results and activities for each task, including deviations from Description of Activities:*

- **Task 4: Seamless Evaluation with the ESMValTool**
  - *ESMValTool has been adapted to accept CORDEX data*

- **Task 5: Enhancing the use of the ESMValTool for model development**
  - *Developping the integration of ESMValTool into EC-Earth workflow*

- **Task 6: Coupling of externally developed diagnostics and metrics to the ESMValTool**
  - *Several new diagnostics are implemented as part of ESMValTool Version 2.0, including an updated version of the NCAR CVDP package*
  - *Integration of the ENSO metrics package into ESMValTool*
  - *Integration of the Met Office's Autoassess metrics into ESMValTool*

- **Task 7: Coupling of ESMValTool to the ESGF**
  - *Full operation use of the tool in conjunction with local ESGF nodes and remote ESGF nodes via synda*
  - *Curation and availability of observational data at the ESGF sites DKRZ and CEDA*

# Debriefing from WP n°9

*Bjorn Brotz and Kim Serradell*

## Work progress - Main achievements (page 3)

*Significant results and activities for each task, including deviations from Description of Activities:*

- **Task 8: Distributed ESMValTool computing and calculations on user demand**
    - *Some initial work on wrapping of ESMValTool into a WPS to facilitate using it in a distributed fashion.*

*Deliverables and Milestones: indicates the delayed ones, and the next ones to completed before RP1*

- *No deliverable or milestones to be completed before RP1*

# Debriefing from WP n°9

## Next steps with focus on key issues to be addressed

*Next steps and issues to be addressed by the end of RP1 (mo18 – June 2020)*

- *Discuss with VA2 WP about the deployment of ESMValTool in the webservice hosted at DKRZ as diagnostics portal.*
- *Complete D9.1: Release of the ESMValTool supporting irregular and unstructured grids*
- *Release of ESMValTool version 2: We are currently in the process of working towards the release of ESMValTool version 2. This includes substantial contributions from IS-ENES3 (Task 2: "Improving the performance of the ESMValTool backend") by DLR and other core developers*
- *Four papers with IS-ENES3 acknowledgement and several IS-ENES3 partners involved (1 accepted, 1 in review, 2 in preparation). In particular the Righi et al. (2019) paper and the corresponding v2.0 release will be a major achievement of IS-ENES3.*

*Next steps and issues to be addressed during RP2 (July 2020 - December 2021)*

- *From ESMValTool roadmap:*
  - *Support for unstructured grids (D9.1, met.no)*
  - *Quicklook system for online diagnostics (D9.2, MetO)*
  - *ESGF coupling and distributed computation features (D9.3, UREAD-NCAS)*
  - *Extension to evaluate regional climate models and different timescales (D9.4, BSC)*
  - *IS-ENES3 ESMValTool version including coupling to community consensus developed packages such as the ENSO metrics package and technical improvements such as improved and enhanced automated testing (D9.5, DLR)*