# E-TASC Scientific Board (ACH review)
# PSNC/IPPLM ACH (ACH-04)

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# ACH-04 – Information about ACH

**PSNC/IPPLM ACH (ACH-04) focus on:**

- IMAS ecosystem development
- Support for developers in terms of code adaptation to IMAS, integration with IMAS
- Management of the repository for the community-developed research software
- Support of the integrated modeling tools
- User support and training

# Activities throughout 2023/2024

## IMAS

- Installation of the most recent release of IMAS environment at Gateway
- Development of Docker-based containers based on IMAS platform
  - JINTRAC
  - HELENA
  - MUSCLE3
  - multi-container based computations
- Research & Development related to SPACK/EasyBuild in the context of IMAS platform
- Adaptation of Data Dictionary structures in case there are no structures that can hold required
- information was performed

## Maintenance of integrated modeling tools

- Development of Simulation Catalogue 2, also deployment of services
- Maintenance of SimDB instance
- Maintenance of UDA instance

## Other tasks

- GUI developments (JINTRAC)
- Profiling of the codes was made on various levels: workflow level, IMAS routines level, as well as proof of concepts for MUSCLE3 related adaptation of codes.)

# Activities throughout 2023/2024

## Maintenance of CI/CD platform

- Development of Docker-based runners (e.g. JINTRAC)
- Maintenance of the platform (regular upgrades, security patches)
- Installation and maintenance of GitLab Pages platform
- Development of monitoring services based on Grafana

## User training

- Development of training materials
- Dedicated hand on training sessions
- Maintenance of the platform (regular upgrades, security patches)
- Installation and maintenance of GitLab Pages platform
- Development of monitoring services based on Grafana

# Activities throughout 2023/2024

## Adaptation of codes into IMAS

| Code | TSVV/Project | interface language |
|---|---|---|
| ASCOT5 | TSVV-12 | Python |
| DYON | PrIO | Matlab |
| EIRENE | TSVV-05 | Fortran |
| ERO2.0 | TSVV-07 | Fortran |
| GENE | TSVV-01 | Fortran |
| GYSELA | TSVV-01 | - |
| HYMAGYC | TSVV-10 | Fortran |
| JOREK | TSVV-08 | Python |
| SOLEDGE3X | TSVV-07 | Python |

**Codes in start up phase:**

*VMEC, GVEC, BEAM3D, CREATE, GRAY, MIGRAINE, LIGKA, GRILLIX*

# Attracting and retaining human resources - How PSNC/IPPLM ACH evolved

- While 2022/2023 required more focus on TSVV-11 related activities, 2023/24 activities were targeting efforts towards general adaptation of codes to IMAS, and it also influenced the involvement of the team (in certain activities) as well as its evolution.
- During the whole period of ACH-04 existence, 5 people dropped from the team.
  This required preparation and execution of recruitment processes. It also involved additional training sessions for newcomers. This was one of the factors that influenced temporary decrease of the development efficiency in some areas.
- Changes in internal organisation
  - Three subteams, more adjusted processes of monitoring of the progress
    - IMASification team (physicist + computer scientists)
    - Core team: support and development ( computer scientists)
    - Workflow support team (physicists mostly)

# Attracting and retaining human resources - challenges faced

- Some people left the ACH
  - due to various circumstances, people have left the team on their own choice
- We had to recruit new members
  - this requires putting new effort and time in terms of the trainings and acquiring the knowledge, however we could find adequate people
- Some people turned out to be better fit in other activities
  - sometimes people need to try various areas/tasks until the best fit is found for them
- Some codes are maintained on a dozens of years span
  - it is extremely hard to acquire the knowledge needed for support  without tight cooperation and regular communication with code owners

# Ability to fulfil the requests - Challenges addressed - tasks

**There were some challenges during the development phase**

- Sometimes slightly different expectations from both sides TSVVs and ACH
  - TSVVs expected us sometimes to jump immediately into the code and do developments
  - however, we expect interaction with code developers to understand the code structure (physical model background sometimes); this is usually the most time-consuming part

- Guidance from the developer/maintainer is usually needed in case of working with complex models/codes

  - learning curve requires time and effort on both sides

- We approach every TSVV from a business perspective
  - we need to understand real requirements, all the details
  - sometimes we could have been seen as a pain in the neck, especially when
    - asking for **SMART**(Specific, Measurable, Achievable, Relevant, and Time-Bound) goals
    - pushing towards **OKR**(Objective-Key Results) based tasks

# Ability to fulfil the requests - Adjusting to TSVVs' requirements

**Adjusting to specific requirements from TSVVs**

- We are always trying to find a common ground in the case when requirements are not exactly aligned with our expertise
  - Meetings with TSVVs' team members
  - Definition of exact objectives in case they are misaligned with ACH-04 expertise
  - Reduction of the scope so it fits into our expertise
  - Extension of our expertise in case we can afford that
- Gaining new experience - especially in case of working with physics based codes
  - understanding interface’s structure according to varying final goals
  - understanding elements of physics models behind the code
  - understanding input/output data format
- Very frequent short meetings with code owners/TSVV tasks ROs on the status and open issues
  - we saw substantial slow down of the progress some times without such frequent interaction
- Each code has contact person from ACH, but we try to have more than one involved in the given activity (in case of holidays, sickness, or person leaving the team).

# Feedback on communications- Issues addressed - collaboration

- Adjusting to changing scope during the year
  (This typically impacts the schedule as new solution must be provided.)
- In case we did not have needed expertise at a given time, we made sure that we can find the person and start activities as soon as possible
- We experienced some delays when reaching out to some of TSVVs and getting feedback in a reasonable time
  - This was not blocking us - as we could in the same time work with other codes, but in the general picture the whole process of the support took much longer
- We experienced long process of receiving feedback on delivered products/changes
  - We have to know how to proceed further with initial idea once prototype or proof of concept are ready.
- Senior/experience team member are always assigned to the tasks, but involvement of less experienced but supervised persons should be expected

# Adequate training to ACH team members

- At PSNC we are providing the EUROfusion team members with an access to a wide range of trainings and tutorials. ACH as such created and provided tutorials and online materials for TSVVs and wider audience of EUROfusion.
- New members of ACH team working on the IMAS interface development were/are trained by most proficient team members. The training is done during the activities related to the real tasks and during the face to face meetings.

Issues:

- There was a limited number of responses for online training sessions in the past even though they were actively promoted via various channels.
  To resolve this issue, ACH-04 focused more on on-demand activities (usually one to one) or recorded guidelines available online.

  ->Maybe we could have more support in advertising

# Assigning tasks to ACH's

- New proposal form for the ACH suport request – action already taken

# Further discussion point/suggestion for improvement

- F2F meetings were very effective if only possible
- More budget travel could significantly speed up interaction with key code owners
- More frequent feedback mechanism, could help identify issues that are not communicated in other channels

Any questions?