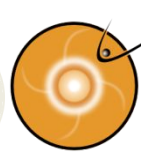


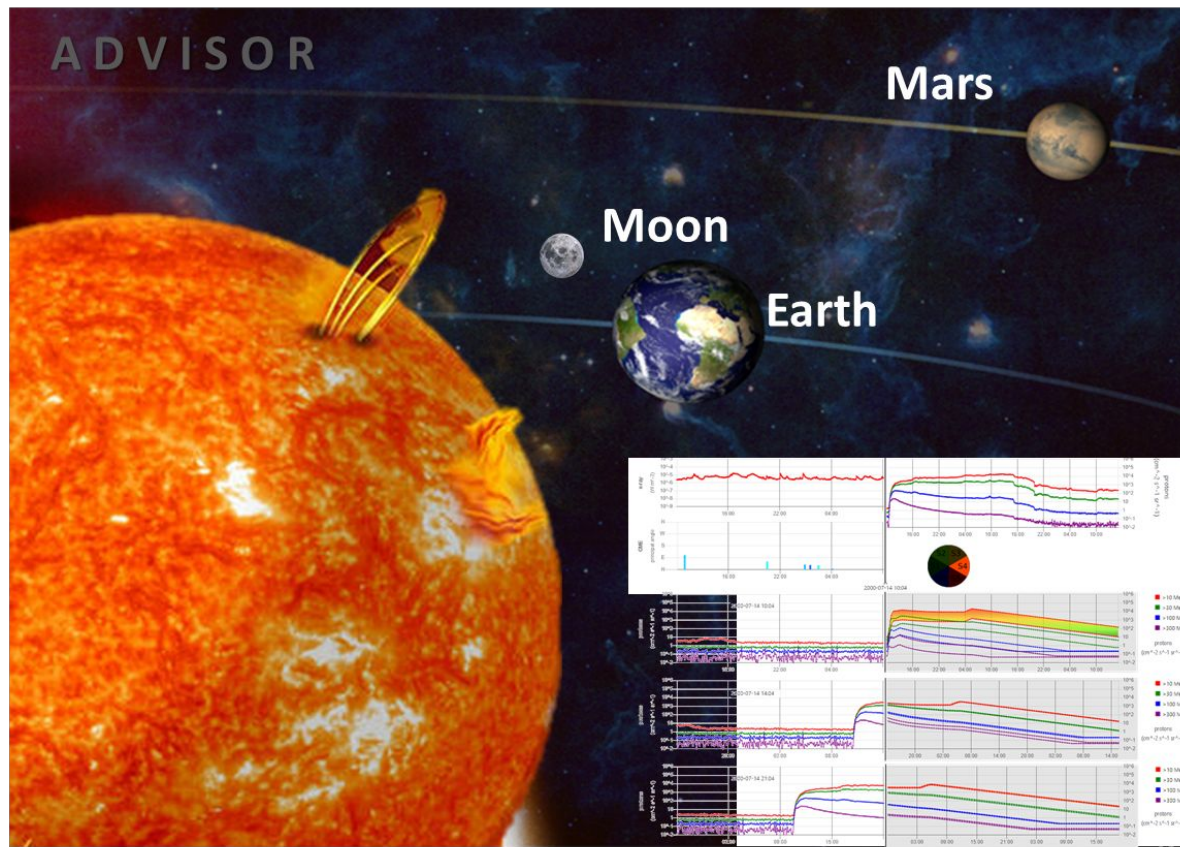


Data Analysis and Software in Heliophysics (DASH)



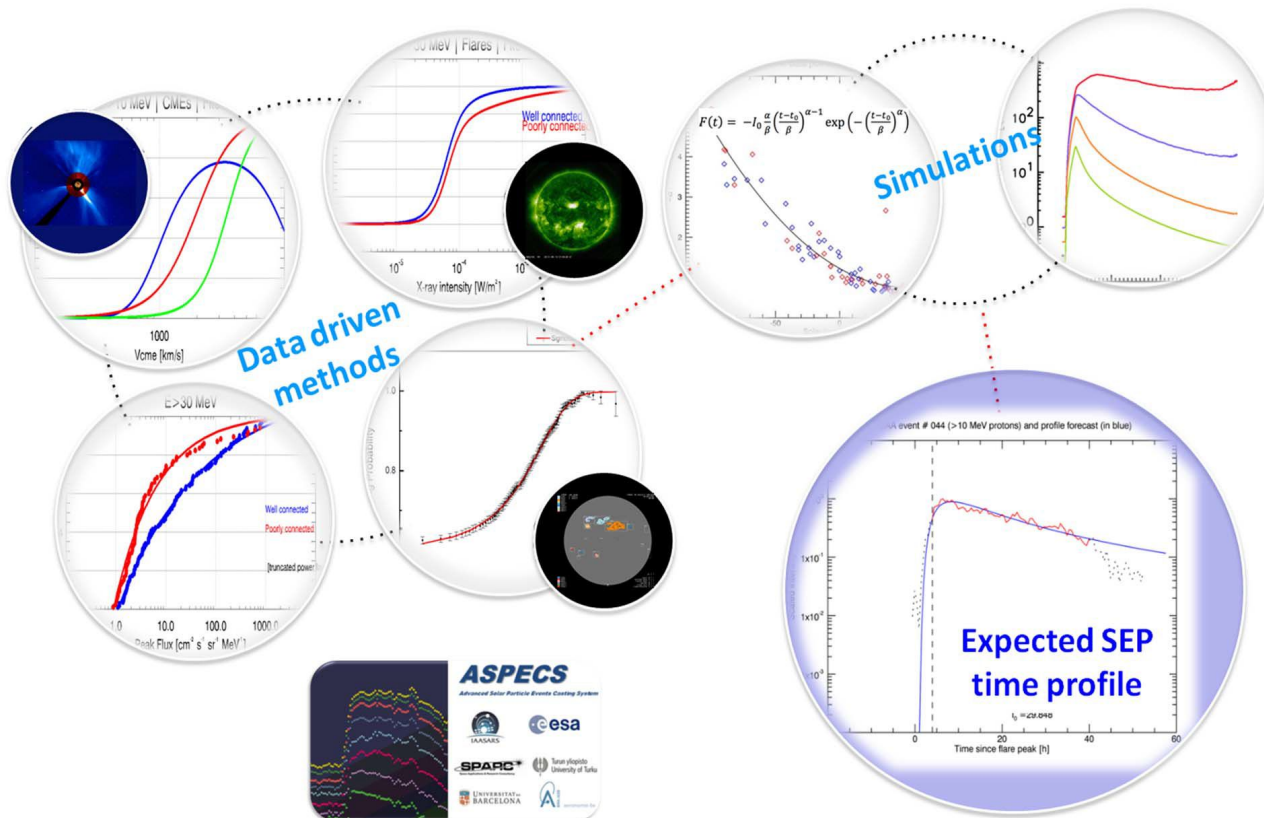
COMMUNITY COORDINATED MODELING CENTER

ASPECS: From Research to Operation through ADVISOR



The ASPECS tool

ASPECS - Advanced Solar Particle Events Casting System



The ASPECS tool

ASPECS

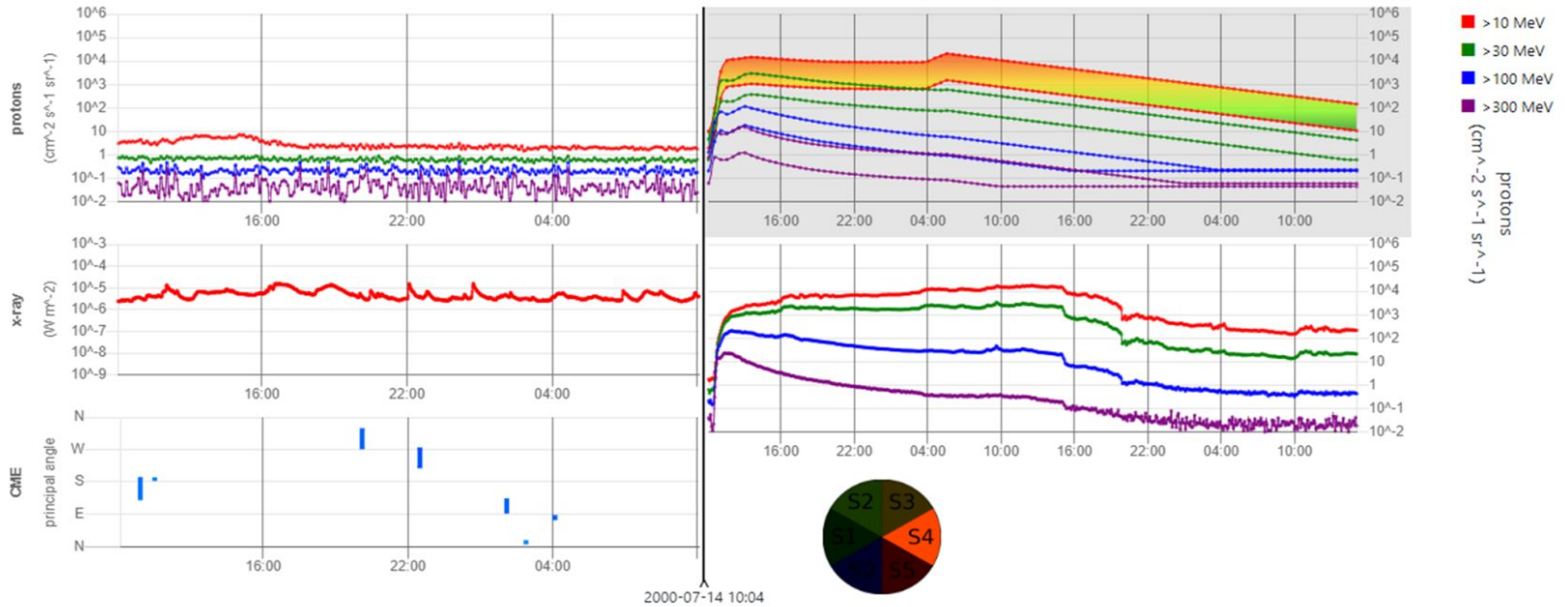
Advanced Solar Particle Events Casting System

About Nowcasting Forecasting Run On Demand (Nowcasting) Run On Demand (Forecasting) Contact Info Help

SAWS-ASPECS Tool - Run On Demand (Nowcasting)

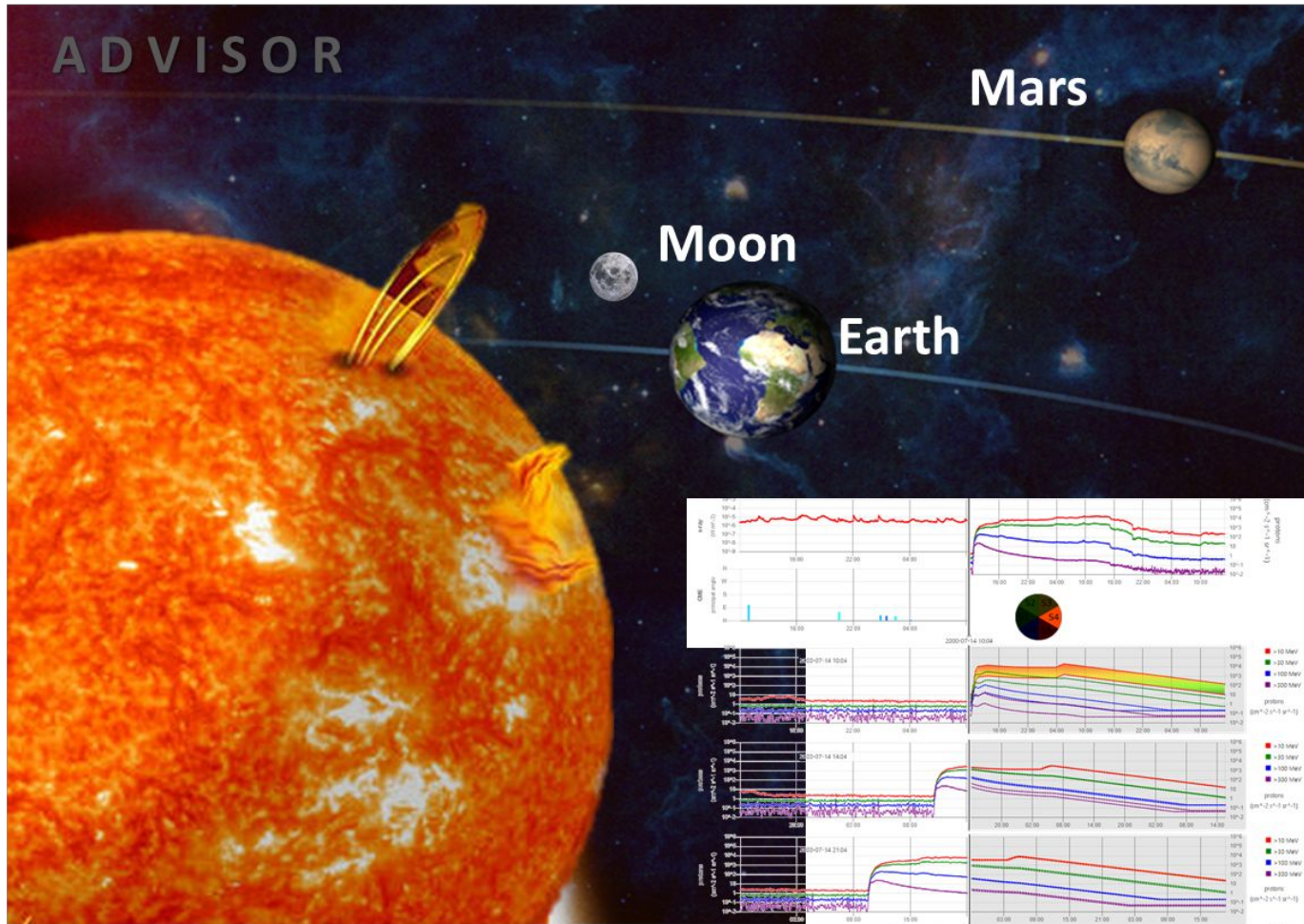
Date: Hour: Minute:

@10:04 UT

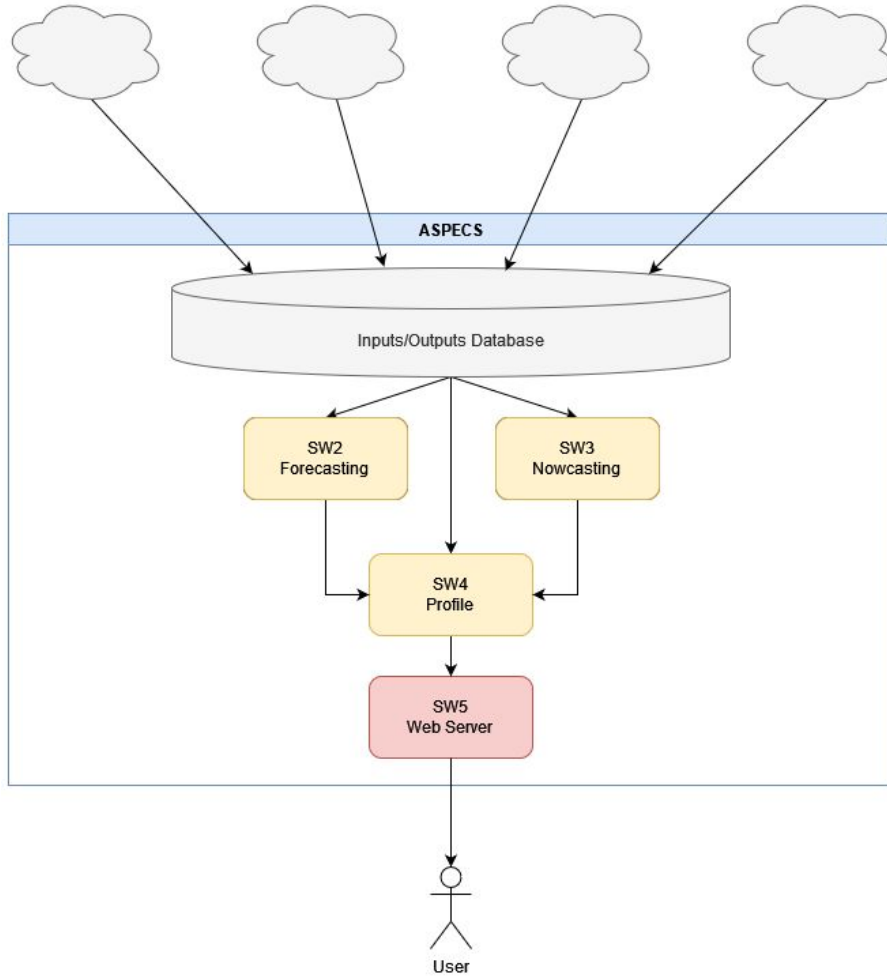


The ADVISOR project

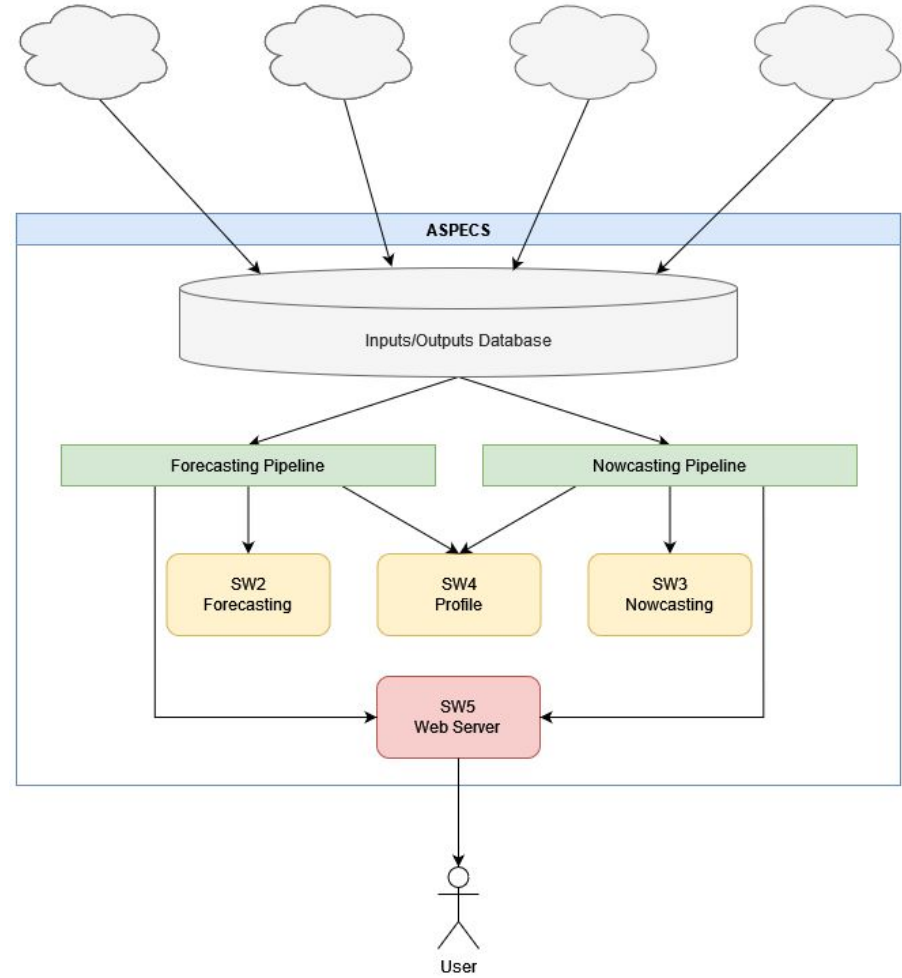
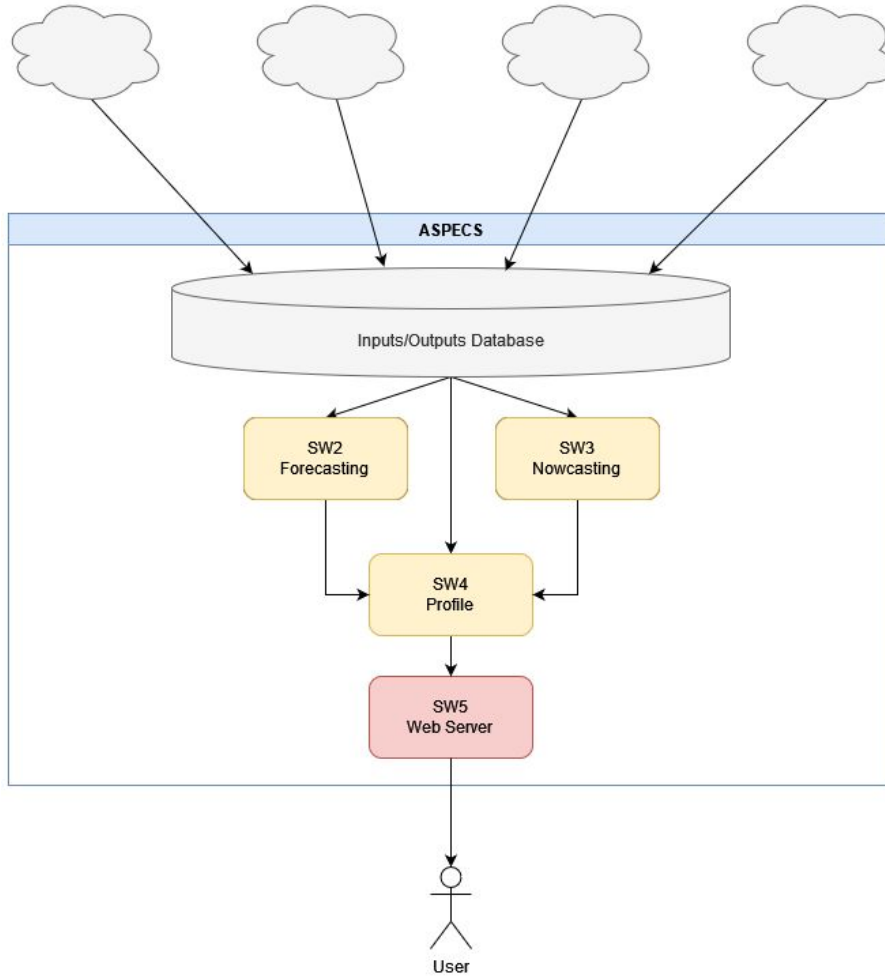
ADVISOR - Optimiz**A**tion, Deli**V**ery & Install**A**tion of the AS**P**ECS t**O**ol for Space Weathe**R** research within ISEP



Refactoring the ASPECS tool

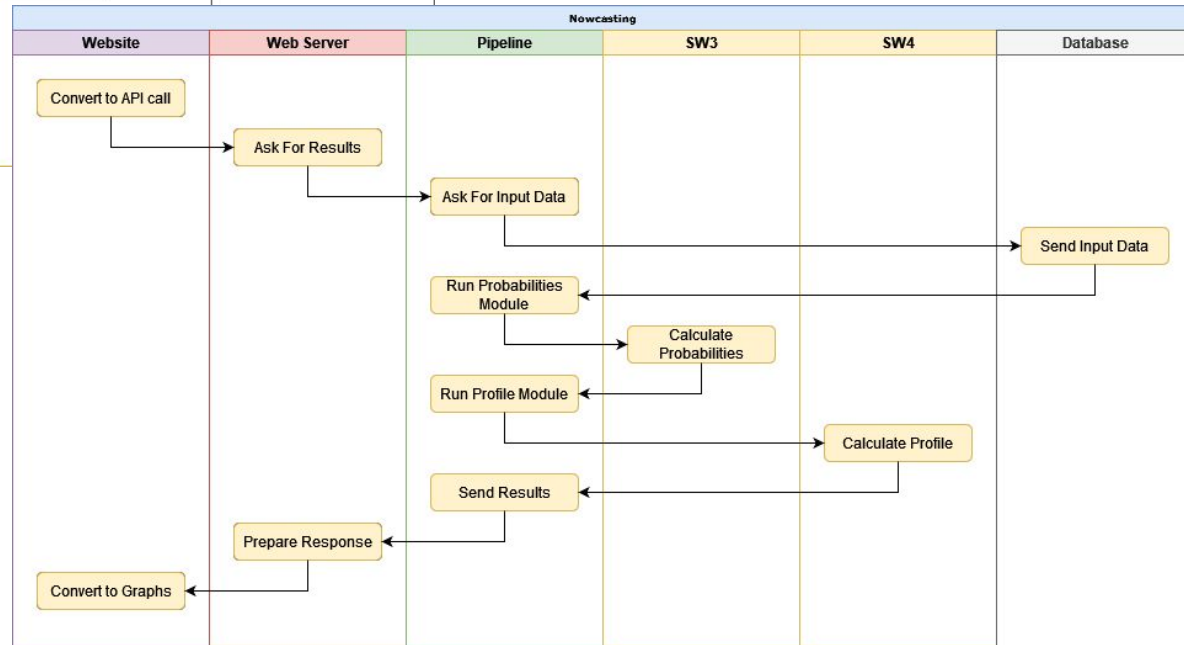
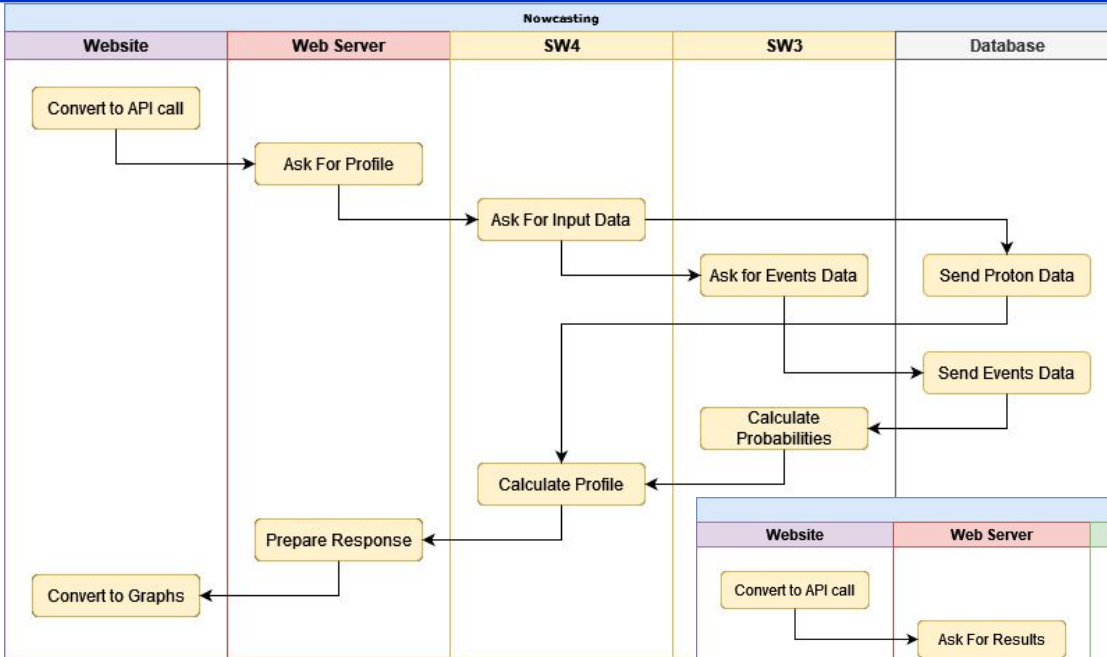


Refactoring the ASPECS tool



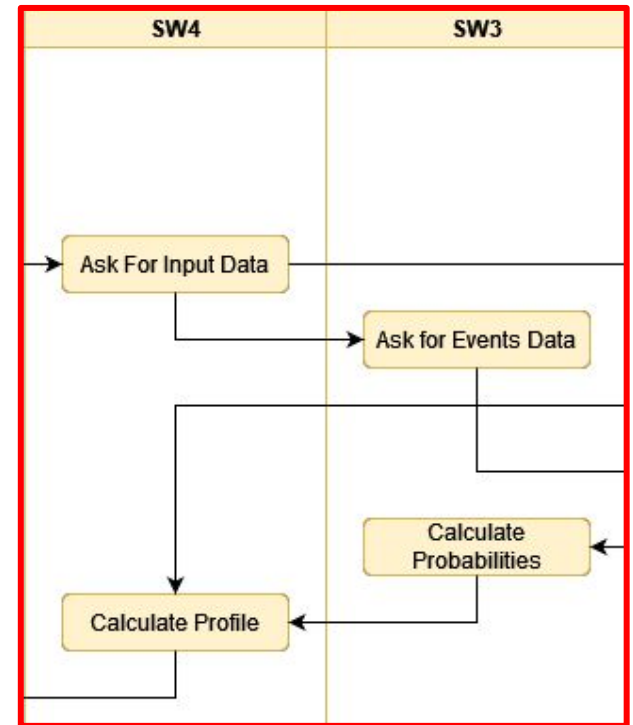
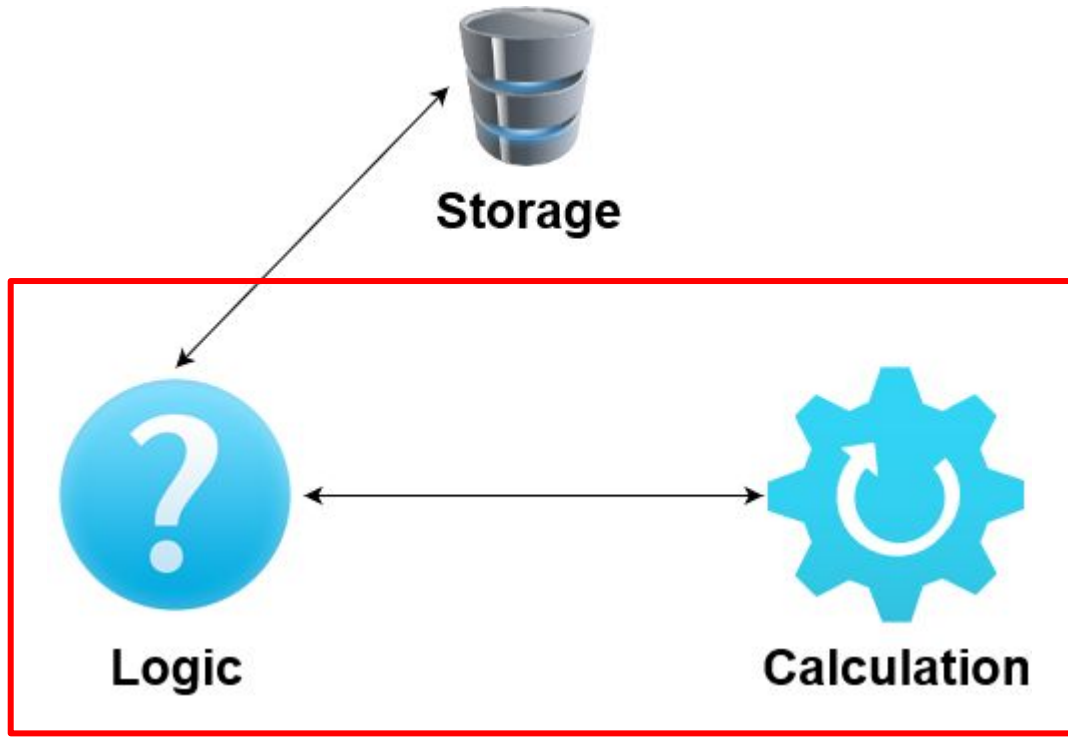
Refactoring the ASPECS tool

“Tangled” flow
Multiple tasks per tool part
SW4

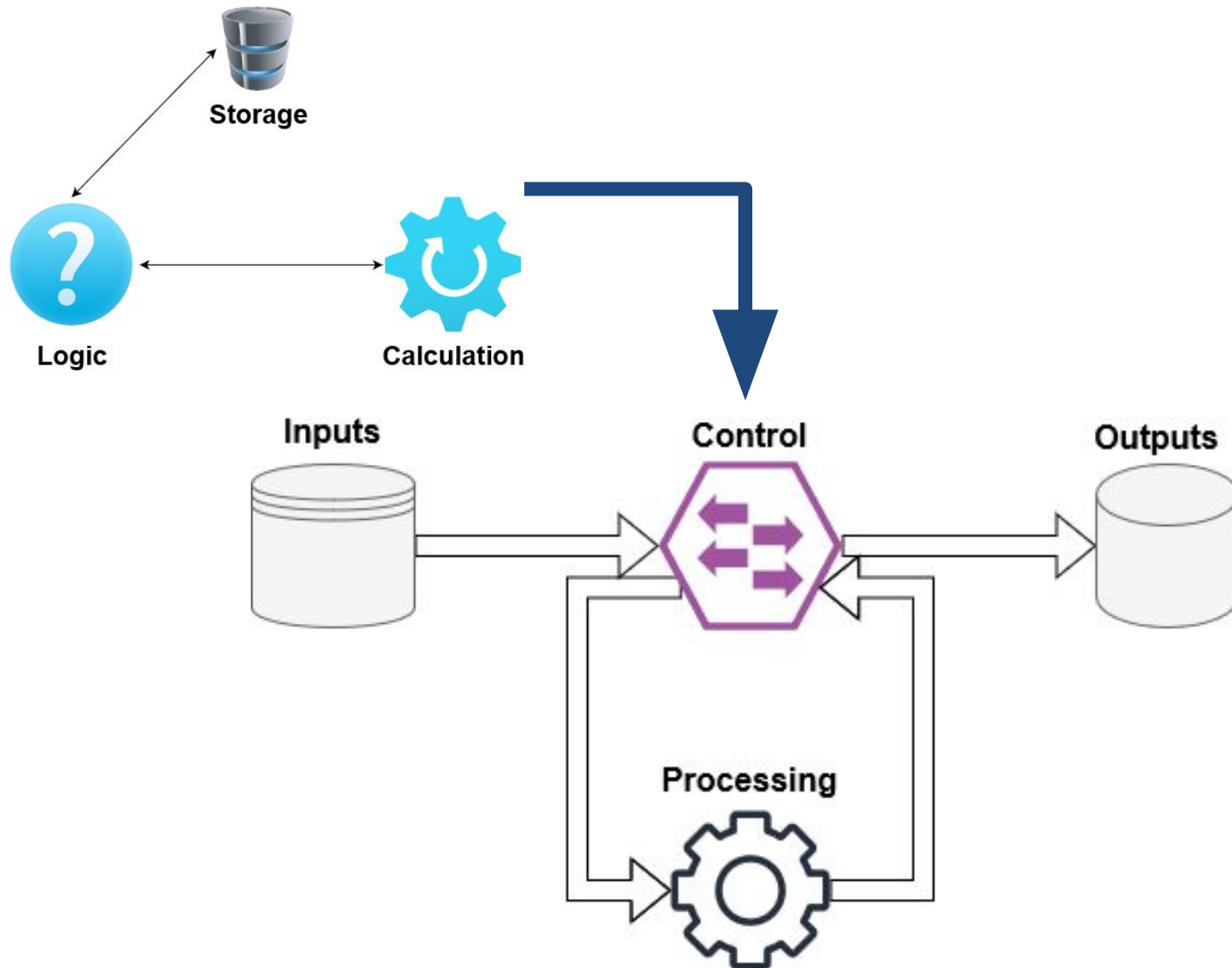


Serial flow
Clear task per tool part

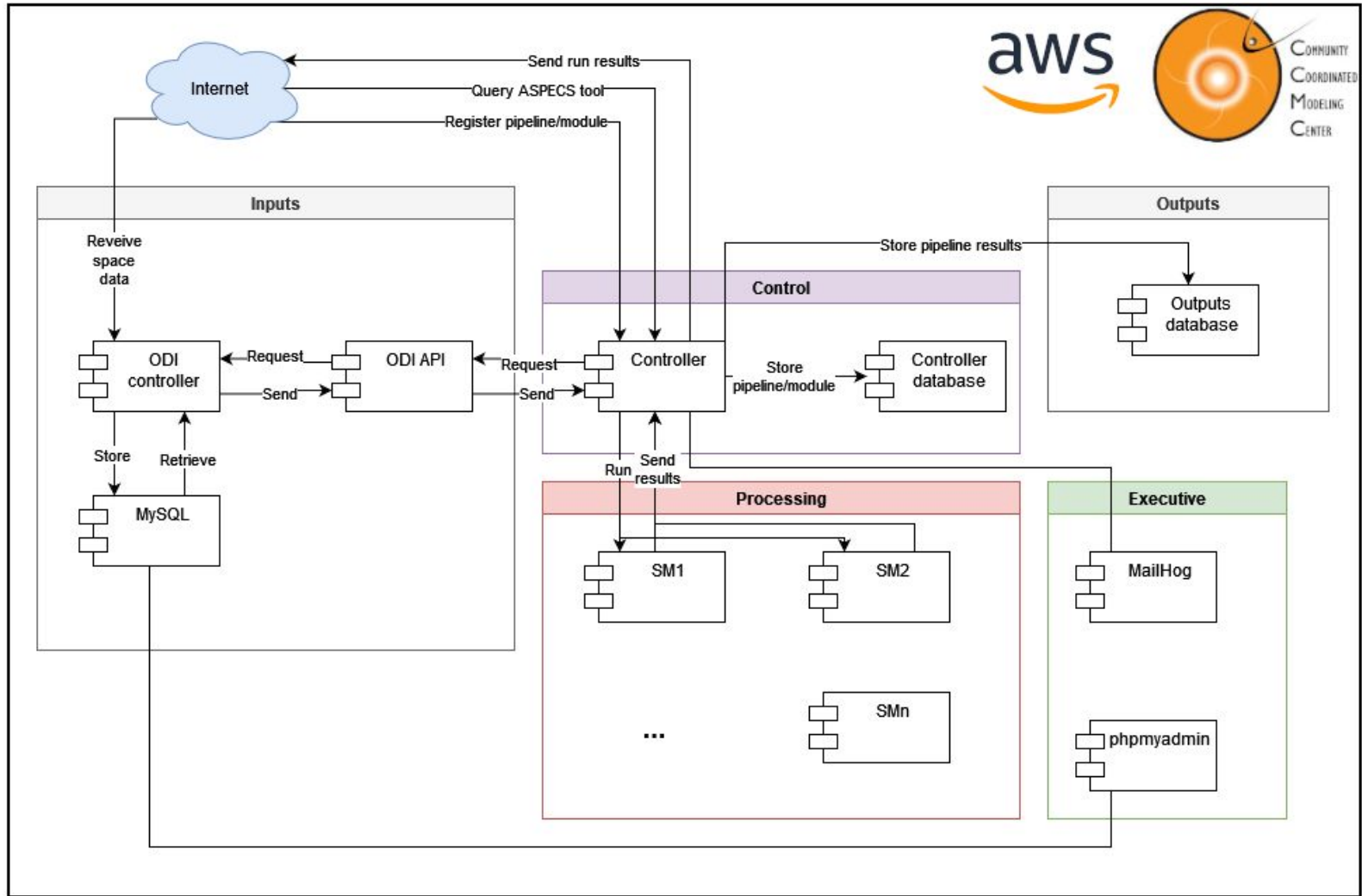
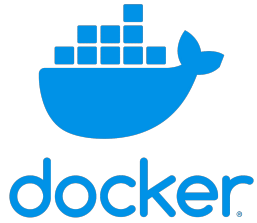
New Architecture



New Architecture



New Architecture



Pipelines

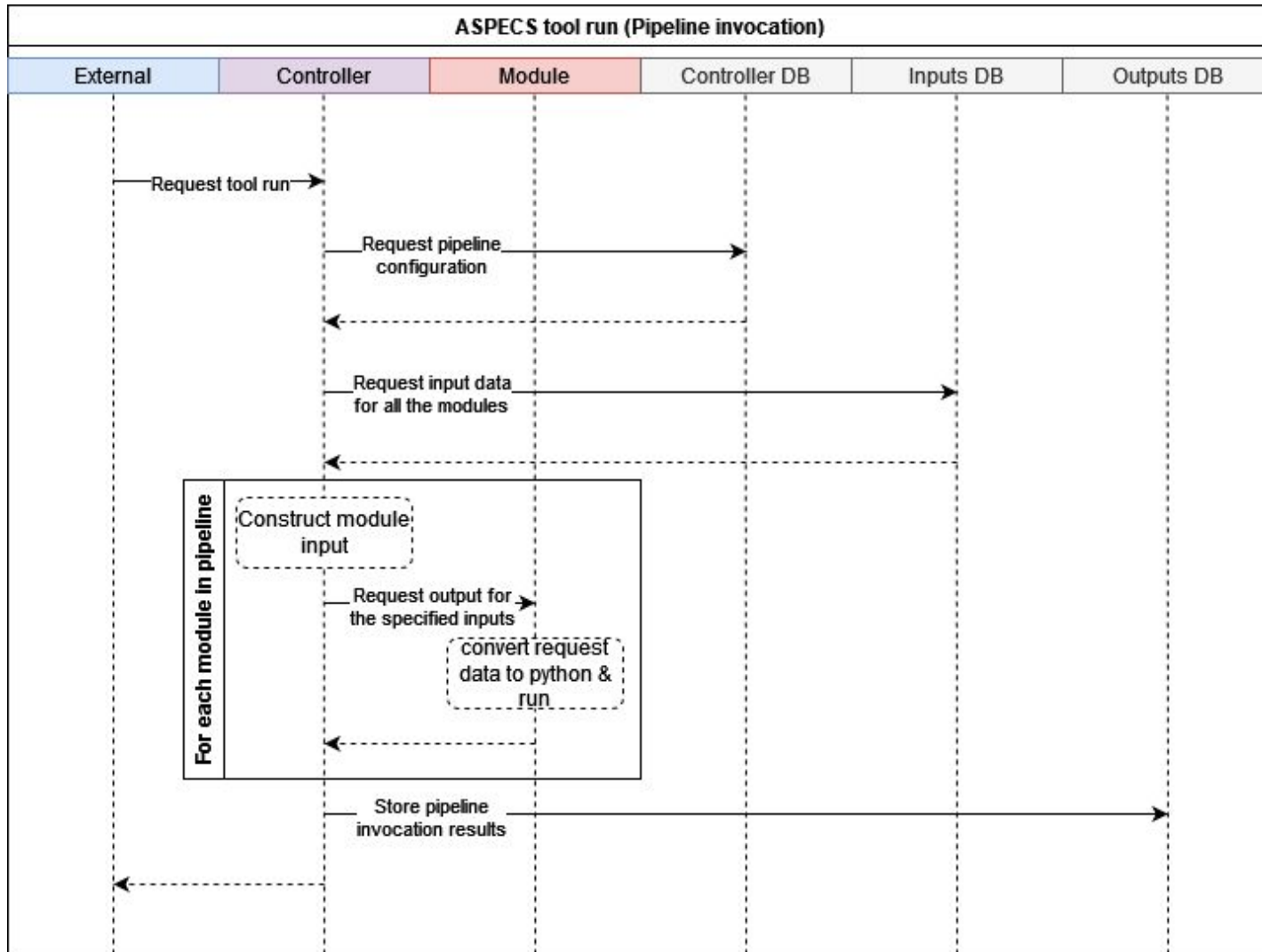
```
# Name of the pipeline
pipeline_name = "nowcast"
serial_modules = ["prosper", "sepchars", "protons_reality_check", "sepprofile_id1"]
cron = 300
```

```
[module_customizations.prosper.flares]
source = "db"
lookback_window = 1800
```

```
[[module_customizations.prosper.flares.mappings]]
json_key = "flare_longitude"
db_field = "longitude"
```

- Defined by a single configuration file
- Unique name
- Serially executed modules (pipeline invocation)
- Manipulate module input parameters
- Pipeline-specific variables (e.g. cron)

Pipeline Invocation



Output Granularity

```
{
  "inputs": {
    >   "prosper": { ...
      },
    >   "protons_reality_check": { ...
      },
    >   "sepchars": { ...
      },
    >   "sepprofile_id1": { ...
      }
    },
  "meta": {
    >   "end": "2024-10-14 09:45:53.958605",
    "execution_order": [ ...
    ],
    "relative_datetime": "2024-10-14 09:45:53.738355",
    "start": "2024-10-14 09:45:53.738342"
  },
  "outputs": {
    >   "prosper": { ...
      },
    >   "protons_reality_check": { ...
      },
    >   "sepchars": { ...
      },
    >   "sepprofile_id1": { ...
      }
  }
}
```

- Fine-grained output
- Issue tracking reasons
- API translations

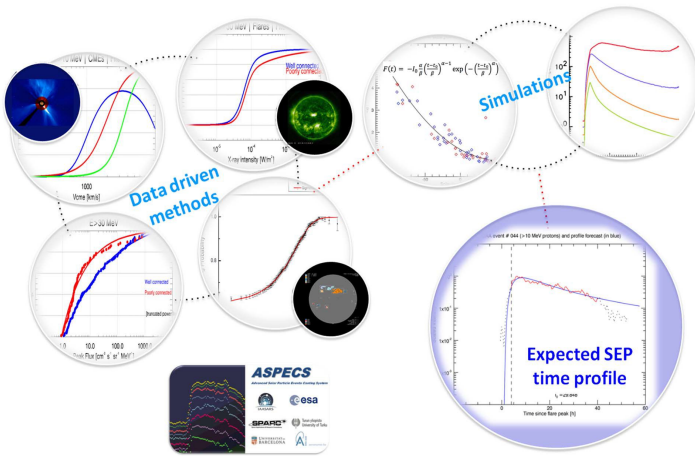
Conclusions

Both science and software are equally important

Well designed software is critical

Modular architecture helps in future changes and reconfigurations

ALWAYS be prepared for the unexpected



THANK YOU!

