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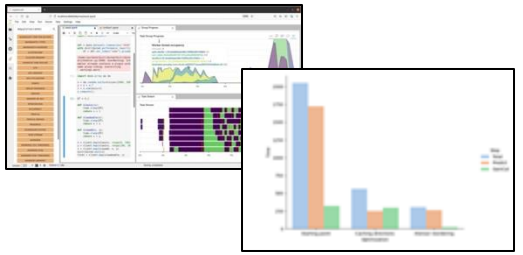
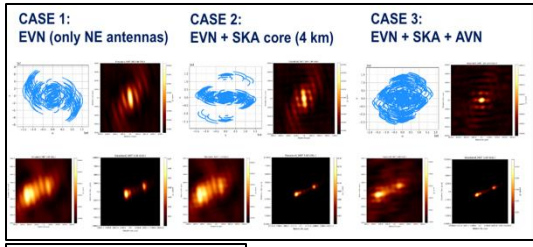
Objectives in a nutshell

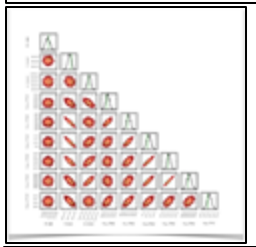
- ❑ **5.1 Impact of DASK on automated processing workflows for Radio Astronomy data**
- ❑ **5.2 Develop a scalable fringe fit calibration implementation in the DASK framework**
  - ⇒ Re-implement existing algorithms in Python DASK and measure improvement
    `https://www.dask.org`



- ❑ **5.3 Simulations for optimising calibration and parameter extraction**
  - ⇒ Synthetic data with known errors to systematically test algorithms / instruments



- ❑ **5.4 - Bayesian inference for sparse visibility data**
  - ⇒ Extract astronomical measurements with their probability distribution functions



- ❑ **5.5 - Modular PAF Backend Processors toolkit**
  - ⇒ Combine (very!) high data rate I/O with complex real time processing

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- **Across whole work package option:**
  - ⇒ methodology sharing? [industry standard workflows, testing, review etc?]

- **5.1 Impact of DASK on automated processing workflows for Radio Astronomy data**
  - ⇒ Definitely benefits from TC-GPU [accuracy might be dealbreaker if > 8/16 bit floating point precision required]
  - ⇒ Faster and more accurate RFI excision algorithm ["noise" for radio astronomy but could be industry's data]

- **5.2 Develop a scalable fringe fit calibration implementation in the DASK framework**
  - ⇒ Highly specific to radio astronomy - one of several calibration steps [too specific?]
  - ⇒ fits for tropospheric-, ionospheric- and clock errors in one run; useful for anyone? [not necessarily separable]

- **5.3 Simulations for optimising calibration and parameter extraction**
  - ⇒ Brute forcing simulating interferometric data set(s) based on some instrumental parameters [too specific?]

- **5.4 - Bayesian inference for sparse visibility data**
  - ⇒ Unsure if algorithm can be rewritten to matrix-matrix algebra (TC-GPU) [might be generalised if Yes]

- **5.5 - Modular PAF Backend Processors toolkit**
  - ⇒ Combine (very!) high data rate I/O with complex real time processing; ongoing collaborations with (local) industry:
    - NVIDIA Linux kernel (jumbo frame support)
    - virtualisation of compute hardware
    - tuning distributed file systems (e.g. BeeGFS; radio astronomy workload unlike mostly everything else)