Progress on the New ACCESS Model Evaluation Scheme

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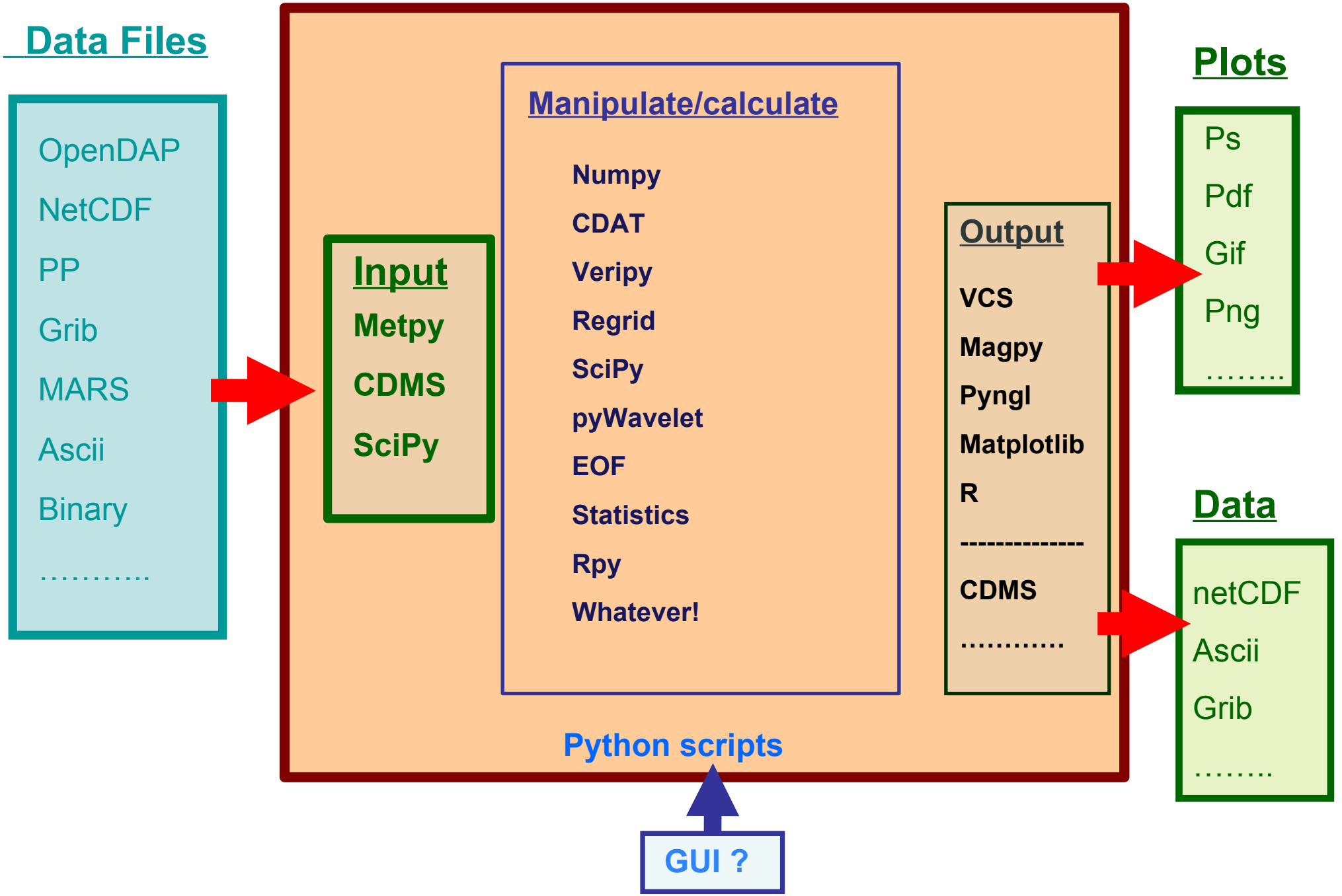
MODEL EVALUATION FRAMEWORK



Progress

- Metpy + veripy entwined into operations
  - Some teething problems but gaining momentum
- AMIP evaluation scheme in prototype
  - Pilot scheme to facilitate quick evaluation for coupling
  - Based on cdat but significant development in local python scripts
  - MySQL database set up and running
  - Some interest to extend it to climate model selection

Rest of talk concentrates on the AMIP evaluation suite

Basic Philosophy

- Objective
- Application dependent
- Data based
- Simple user interfaces
- Hierarchical storage system

Observational data requirements

- Monthly mean (global) data for long periods
- Observational error estimates
- Variability measure (e.g. standard deviation)
- Quality control

Error definitions

Monthly Scaled Error

Saved in database as time series

$$U_{xy}$$

Observational Uncertainty

$$U_{xy} = \sqrt{STD_{xy}^2 + OE_{xy}^2}$$

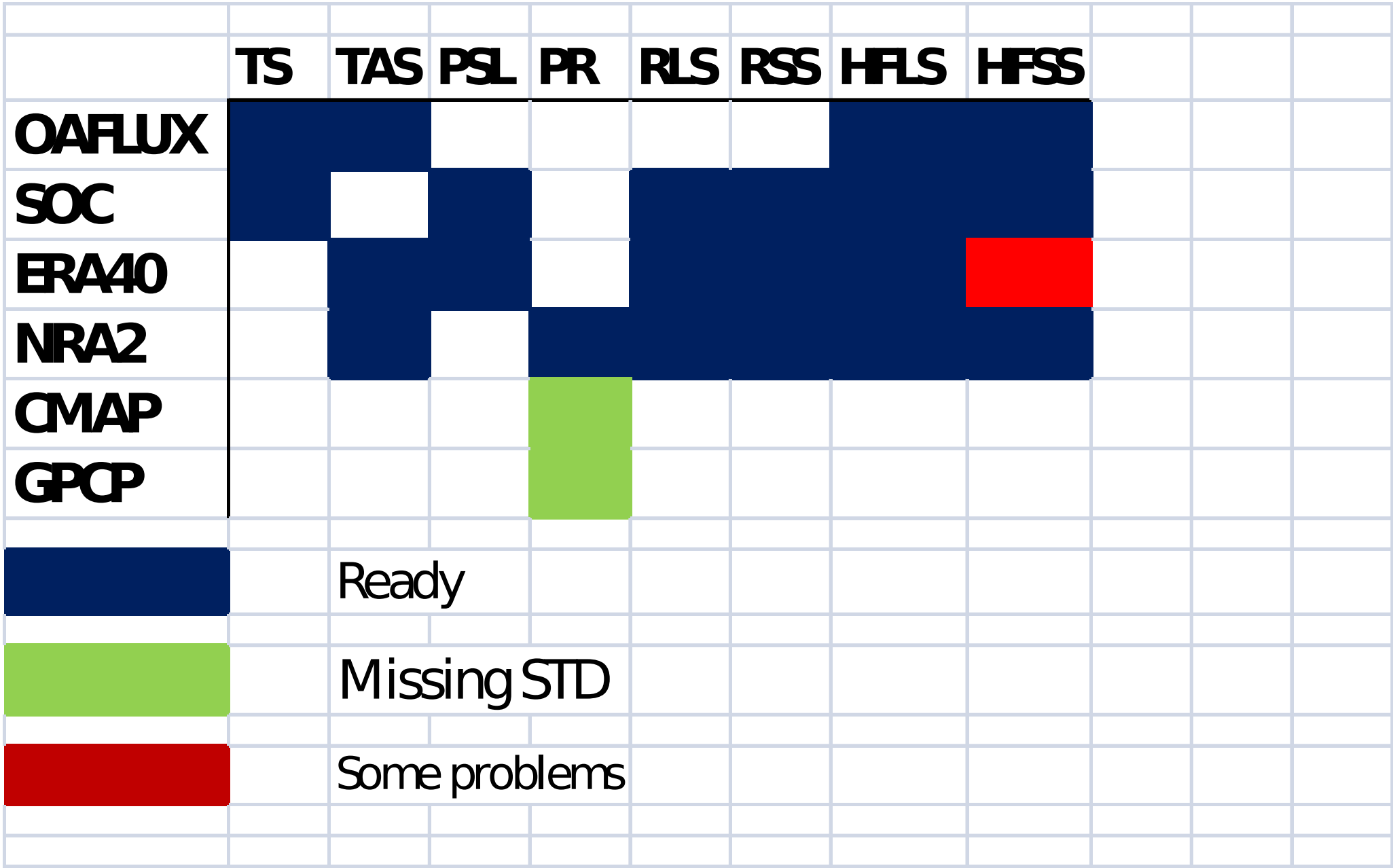
Error Metric

$$E_M = \frac{1}{N_t} \frac{\sum_t \sum_O E_{MO}(t) W_O(t)}{\sum_t \sum_O W_O(t)}$$

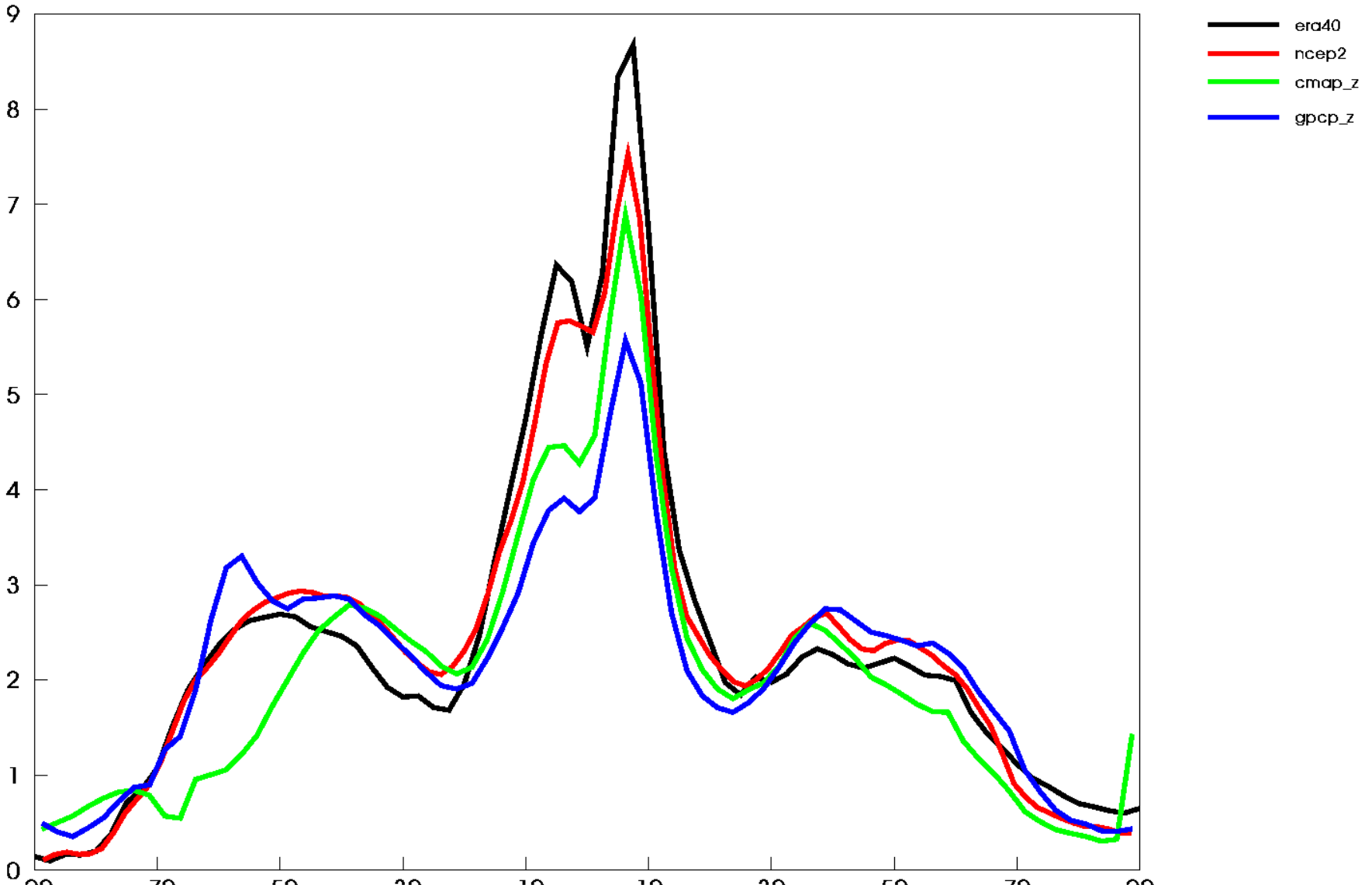
Scaled Metric

$$S_M = \frac{E_M}{E_R}$$

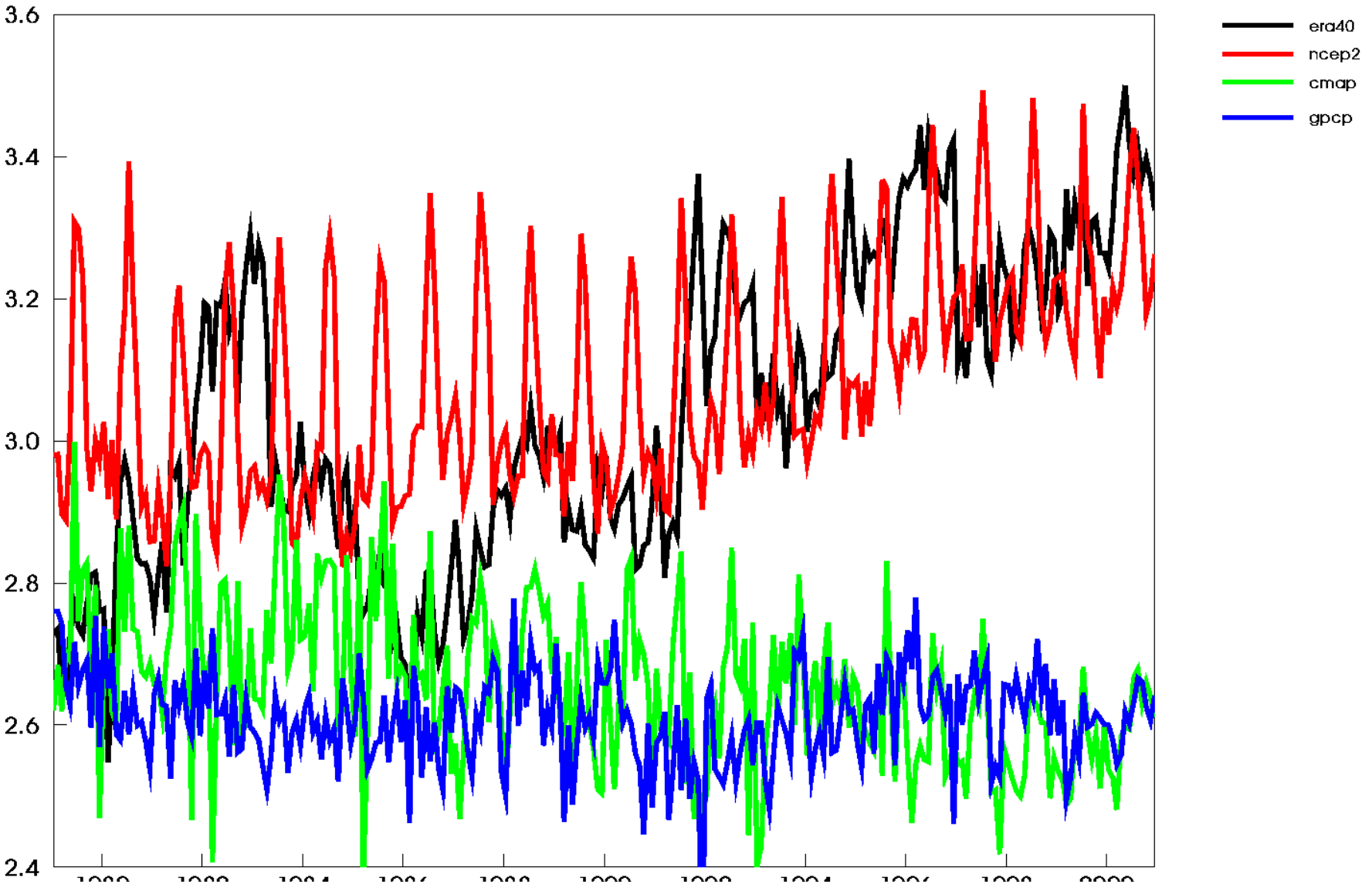
Observational Data Processed



Zonal Mean Precipitation averaged over 1979-2000



Time series of global mean precipitation 1979-2000



What we have learnt

- Data ain't data
  - Objective also applies to obs data
  - Combining obs data sets needs care
    - Errors ain't errors
    - Correlation
- The devil is in the weights!
- Definitions differ

Next

- Finish processing current data sets
- Get more obs data sets and process them
- Get metrics set for southern ocean surface
- Solve problem of objectively combining scaled errors
- Set up accessible data storage
- Add UI to basic scripts