



Interoperability



What are we trying to do?

- To ~~boldly~~— transparently process a dataset using software from multiple packages.
- Exploit common python interfaces of AIPS, CASA, MIRIAD and GILDAS
- Major issue is variation in data formats and calibration models between packages
- Use intermediate data format (e.g. UVFITS) or
- Design a new one?



What Packages?

- **AIPS: large volume of legacy applications; VLBI; Parseltongue**
- **CASA: ALMA and EVLA; casapy**
- **GILDAS: IRAM PdB mostly**
- **MIRIAD: CARMA, SMA, ATCA, WSRT**
- **LOFAR/Meqtrees**
- **.....?**



Test Problems

- **What is a good test problem?**
 - **Scientifically worthwhile: ideally, do something that was previously impossible; at least make a job much easier and quicker.**
 - **Technically challenging ...**
 - **... but not too challenging**
- **Examples**
 - **Calibrate and image long-baseline ALMA observations using VLBI techniques (global fringe fitting) from AIPS to supplement standard reduction in CASA.**
 - **Transfer calibrated e-MERLIN mosaic from AIPS to CASA to image with proper primary beam correction.**



Choice of data format

- **Efficient interchange of data between packages is key to real interoperability**
- **Input and output of uv data via a standard format (UVFITS) is possible for all relevant packages (with a few idiosyncrasies) : do this once and keep copies of binary data in AIPS and CASA MS**
- **Fix FITS issues**
- **Transfer calibration, flagging tables: how difficult is this (i.e. how different are the calibration models).**
- **Consider LOFAR HDF5 implementation later as a way of implementing efficient data storage for MS-based packages.**



ESO



- **New position**
 - **ALMA Regional Centre (ARC)**
 - **ARC scientist hire brought forward**
 - **ALBiUS work and user support/software maintenance**
 - **Job description iterating with HR; hope to advertise shortly**
- **ESO environment**
 - **ARC building up; ALMA Fellowship programme expanded; close links to ARC nodes → increasing numbers of active radio astronomers**
 - **Two CASA developers working at ESO as part of ALMA Division, one specialising in ASDM.**
 - **Limited in-house programming experience in AIPS (simple applications); none in Obit, Parseltongue**