News from VIS-PF / OU-VIS

H. J. McCracken and the OU-VIS team



Create and run a pipeline starting from raw VIS data which can produce images suitable for the measurement of weak gravitational shear **and which meet mission requirements**







SC4, science challenge four (and 56)



- Full details here:
 - SC4,5,6 complete end-to-end VIS->SHE pipeline
 - <u>https://euclid.roe.ac.uk/projects/sgv/wiki/SC456_#VIS-</u> <u>simulations</u>
 - VIS input data available at CC
 - First simulation reaching realistic depth, including stars and galaxies and variable PSF
 - Includes cosmic rays, photon noise, optical ghosts, zodiacal light, unresolved background galaxies, optical PSF, AOCPSF, geometric distortions (for position, not shape), flat-field, bias, saturation, pre/overscan regions, readout noise, CTI
 - Most realistic simulations yet of VIS camera
 - Will Euclid lensing measurements work?

The need for validation (2)

- But ... SVP2 document only considered CTI/PSF effects and at a catalogue level !
- What if, for example, badly corrected cosmic rays are smeared by CTI?



Validation of VIS PF

- Have all the known instrumental effects been incorporated into the VIS PF pipeline ?
- Is our knowledge of the instrument correct?
- Do the images meet the stated requirements?
- What ARE the requirements? (Still many TBC/ TBD in the mission documents)
 - We used a "flow-up" technique hoping that it "it will be alright on the night"...
 - But it may not be...



...in OU-VIS / VIS-PF!



- <u>There is now a very urgent need to test the output of the</u> <u>VIS-PF pipeline with realistic SC4 data.</u>
 - Develop efficient and fast quality control techniques (new methods)
 - Develop fast / efficient and scalable versions of PSF reconstruction and measurement techniques (based on OU-SHE tools)
 - Carry out validation and verification over the 100 deg^2 in SC4 in conjunction with SHE/VIS
- VIS-PF cannot carry out this work alone