DiFX vs Mark IV:
A Geodetic User's Perspective

Alessandra Bertarini, IGG University of Bonn

Helge Rottmann, MPIfR Bonn

Alessandra's Background

	Mark IV	DiFX
Experience:	8 years	3 months
Learning Curve:	1 year (starting from zero knownledge)	1 week (after 8 years exp.)

Geodesy Needs. Part I

The International VLBI Service delivers a service and not research. Geodesy correlation needs to be fast & reliable.

Fast -> Data reduction should happen within two weeks from the observation.

DiFX pro: Correlation of a 24 hour 6 station geodetic experiment runs in ~ 12 hours instead of ~ 30 hours with the Mark IV.

DiFx contra: In case of problems, Mark IV support comes from developer (fast), DiFX support comes from mailing list (slow).

Geodesy Needs. Part II

Reliable -> Every upgrade must be tested.

DiFX contra: Upgrades happen more often for DiFX than for hardware correlators (Mark III to Mark IV ~ 10 years).

Solution: A test experiment needs to be correlated and analyzed (up to EOP delivery) for every upgrade.

Error Space

DiFX: More opportunity of screwing up everything but happily correlate ☺.
Whatever real number given to a double array won't prevent a software code from running.

Mark IV: usually it either correlates or it does not.

Reality:

Geodesy always uses the same mode (i.e. same **v2d** file) for correlation, so after learning on the first experiments, correlation should run smoothly.

Know-How

The user needs to develop sysop skills too (not really required for the Mark IV).

The user needs to develop C++ skills (opening a program to check its functionality happens more often for DiFX than for the Mark IV).

The user needs to develop radio interferometry knowledge (whilst for the Mark IV undergraduate physics knowledge is enough).

Conclusion

Geodesy correlation was proven to work (different geodetic setups were succesfully correlated), but still requires some amount of work to become operational.

Operational geodesy requires product support (present with the Mark IV) to resolve problems rapidly. Who is going to take up this role?