ADCSS 2011 FDIR Session
CONCLUSIONS

Position Presentations identified following common areas of concern and challenges of today's FDIR engineering for Space Systems:

- lack of systematic approach, engineering transparency and guidance of the FDIR engineering process (fitting FDIR concept to mission goals and objectives, trade-off between fault tolerance level and required autonomy, FDIR strategies),
- what to request from FDIR design and development at respective project milestone (SRR, PDR, CDR ...)
- formalisation of concepts and terminology (fault-failure-errors characterisation)
- scalability of FDIR system
- efficient V&V methods as well as completion criteria of qualification

Model-based approach was mentioned in several presentations as an attractive approach when dealing with FDIR issues, although presenters could not explicitly answer how specific issues are tackled (e.g. benefit of model based approach for V&V activities for Space System FDIR etc.).

Round Table discussion highlighted the need of closer cooperation with RAMS Engineers (very few were present at Workshop) to assure that Mission Goals and System perspective is timely and properly addressed with these experts at the start of Space System FDIR engineering.

Two opposite views have been expressed - making Fault Management a separate discipline versus educating System Engineers on FM matters – with different supporting arguments. Having a FM responsible role within a project will focalise FDIR issues follow-up and resolution, but bares the risk of dumping all problems to single person. Educating other discipline's engineers on FM matters, could bring more guarantee on earlier addressing of FM issues, but bares the risk of no focal point responsible.

It was emphasised the importance to use a classical three perspective view – Organizational – Process – Technological – when dealing with FDIR engineering issues. This should allow FDIR engineering to be harmonized with overall System engineering process.

Factors and reasons contributing to the variability and delays of FDIR specification and engineering in the today's ESA project were asked.

Conclusion: The session acknowledged the overall problem of FDIR engineering. The three perspective approach on FDIR engineering is to be further evaluated by involving other disciplines such as RAMS etc.