

GOCE FLIGHT CONTROL TEAM CONCLUDES A VERY INTENSE SIMULATION CAMPAIGN ON DECEMBER 6th AND IS READY FOR LOW ORBIT OPERATIONS!!

Long and intense was the task of GOCE FCT (Flight Control Team) during 8 intense weeks of Simulation.

The Simulation campaign, started last October and aiming the training of the three new SOEs (Spacecraft Operation Engineers) Mrs Federica Passone, Mr Carlo Enrico Ghisi and Mr Viet Duc Tran including special participation of the SOE Ana Piriş Nino, had a very tight schedule but counting with very experienced team leaders, the SOMs (Spacecraft Operation Managers) Mr Christoph Steiger and Mr Massimo Romanazzo supported by the mission's Spacon Team.

The campaign started with moderated contingencies for spacecraft mode transitions carefully prepared by Simulation Officers Mr Gustavo Baldo Carvalho and Mr Filipe Metelo, and gradually increased the level of difficulty for testing capacity to quickly respond to shorter Ground station passes due new operational scenario concept at lower orbit and culminating with diverse Survival mode conditions.

Diverse situations were faced involving not only spacecraft failures but also creative situations with supporting Ground stations Kiruna, Svalbard and Troll interpreted by the Sim Officers, besides the MCS (Mission Control System) itself to create an atmosphere with many stress factors.

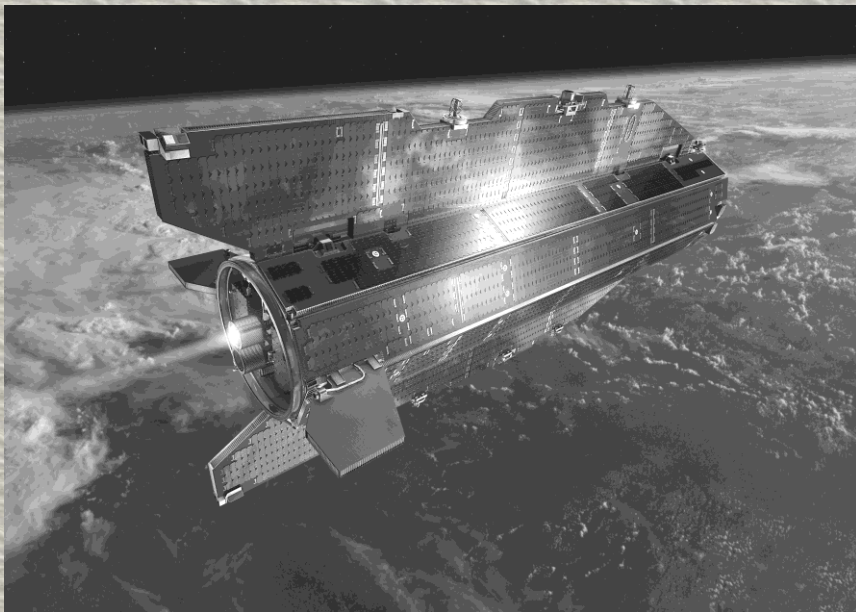
But things did not run as planned from the beginning... Oh my God! The Simulator does not accept 240 km of Altitude, what now?... Many juggles and creative workarounds were suggest, but in the end FCT had to live with the Simulator in 280 km while extra effort was required to force shorter Passes and Eclipses to fake 240 km conditions.

And how painful were the generations for the Simulator Breakpoints...hours of wait till the Spacecraft could reach the correct mode. It almost made the Sim Officer crazy! Long nights dreaming about it being generated over night at ESOC...well some failures were revealed in the dreams among baby crying!

Amazing long Pre-Setup were really a challenge every Sim-Morning among Simulator Crashes and the bloody MCS freezing all the time!

But there comes the Sims Campaign...well not for Federica (for a while) as she felt sick. Legends say that a good Italian Mom's meal can heal anyone... she came back full recovered to dive into the fire of the Sims Campaign. Welcome back Fede!

Well, one could baptize this Sims Campaign as the "Venting Campaign", as almost every Sim had one IPCU Venting, however not modelled by the Simulator and requiring extra effort for having the venting parameters properly forced!



Off course tension was raising during every Sim as the Sim officer injected failures for the desperation of the poor SOEs. To break the ice, Sim-TNOC sometimes answered emails for the scheduling of extra passes in Swedish and Norwegian. Maybe if the Campaign was longer enough, even Klingon would be used!



Apprehension was felt then when with a little help from our friend Duc something weirdly nominal was remembered...Where did the onboard commands go?! Duc's Secret was revealed: Take care about TX switchovers as they delete commands! Thanks Duc!

And then came the survival modes...Cold, Warm... modes for all wishes! Really Painful was the simulated emergency situation...not for GOCE, but for the Simulated NOAA spacecraft primarily supported by Sim-TNOC, keeping GOCE away from having its so desired extra passes for survival mode recovery...off course in very high drag level! Sorry Massimo, just one emergency a time at TNOC!

And what
a dirty
space

the simulations had...full of debris! Maybe one should call Greenpeace! GOCE really suffered from many impacts...frontal, lateral and causing always complicated contingency situations to be solved by FCT...sometimes creating even operational puzzles.

One could state that Budget is already by itself a complicated word, but when it comes to Power Budget with failed Solar Panel, things may really get embarrassing when paying the "Bill" for some extra mN of Thrust! However GOCE had a good extra credit on the experience of its SOMs, who were able to bravely manage the situation bringing the spacecraft back to a safe situation. But Watch your Battery Temperatures and Voltage or you will end up paying for a DNEL!

And during some simulations one could really think the Sun was exploding for causing so high levels of drag at 240 km! What a drag, but thanks Flight Dynamics!



Even facing difficult situations, short schedule, short resources and many operational limitations this was nevertheless a very successful Sims campaign and with it FCT managed to spot many points to be improved in the FOP and spotted many weak points to be further investigated. But the real value goes for the acquired knowledge by the SOMs/SOEs/Spacons.



And now is time for celebration! Next Monday 10th December at ESOC's restaurant K106 the whole team wants to celebrate and to remember all the performed IPCU Ventings!

And just before finishing, one could really hear the Spacon thoughts: "Dear Sim Officer, please do not crash my Stack!".

And now the end is near...well not till next year with GOCE re-entry, but for sure everyone is already longing for their days in GOCE. While most will be distant from their families while performing their duties for the success of the mission, it is certain that everyone is going to remember and be proud to have been part of this wonderful team..."Ave GOCE"! ■