Special flight dynamics operations for GEO satellites

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During its operational experience since the launch of H1A in 1992, HISPASAT, as satellite operator, has been involved in some special/critical operations affecting the GEO fleet. Using the existing flight dynamics system, based on focusGEO, HISPASAT has been able to manage the complete routine operations of the fleet located at 30º West and 61º West, together with the special activities affecting critical operations during the setting-up and control of this fleet, like:

- Implementation of the cluster configuration at 30º West: From the initial “contiguous window” approach to the integrated “collocated scenario”, including H1A, H1B and H1C
- Insertion of the satellite H1D: After consolidation of the cluster at 30º West the new satellite H1D was inserted on this cluster following a dedicated set of maneuvers oriented to place this satellite in the optimum cluster location, without any impact on the operations and assuring a full safety
- Inclined orbit management of the satellite H1B: Maintaining the cluster collocated configuration, the satellite H1B is integrated and maintained in an inclined orbit configuration assuring the full safety constraints.
- Insertion of the satellite SPAINSAT. In a near future the new satellite SPAINSAT will be collocated in the current cluster together with H1B, H1C and H1D. Mission analysis activities have been carried-out to validate the proposed strategy for this insertion.
- Collision risk assessment with a catalog of objects, which orbits are known through TLE

All activities have been successfully supported and achieved after a sequence of operations where focusGEO was the major player supporting the final decision of the Operations Engineers for maneuver analysis, optimization and implementation.

The current flight dynamics system is providing an adequate environment for the support of those special operations:

- providing full capability for satellite monitoring and control from flight dynamics point of view
- providing capability for mission analysis, allowing an assessment and validation of the expected control activities.
- assuring a homogeneous environment for all the existing satellite platforms