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MESSAGE

Indian Space Research Organisation achieved self reliance in design, development and launch of Satellite Launch Vehicles and Satellites which meet the national needs in terms of communication, navigation, weather forecasting and remote sensing. ISRO also made historical successful missions like Mangalyaan and Chandrayaan.

Next step in space endeavour is to achieve the low cost access to space through reusable launch vehicle. Towards this, ISRO conceived a winged body aerodynamic configuration and planned to acquire the Reusable Launch Vehicle (RLV) technology through systematic missions. The RLV technology demonstrator experiences intensive hypersonic aerothermodynamics which leads to heating associated issues. To overcome the heating, special type of Thermal Protection System and materials were developed which underwent huge characterization processes. Due to heating the hot structure design is carried out. This RLV-TD mission demanded new guidance and control design. The mission management involves judicious use of aerodynamic control surfaces like elevon and rudder. All the above aspects needed very huge aerodynamic characterization starting from lift-off, ascent, stage separation, re-entry and landing. Towards this ISRO one meter Hypersonic Wind Tunnel and all national wind tunnel facilities were used extensively and computation Fluid Dynamics played the complementary role. To realize the TPS, hot structures, various auxiliary systems, etc., Indian Industries made significant contributions and academic institutions and R&D organization played important role.

With heavily instrumented RLV Technology Demonstrator mission was successfully accomplished in May 2016 and this mission gave valuable scientific data for different disciplines, ISRO wanted to disseminate the above data among the scientists, researchers and students community across the country.

It is heartening to note that *Current Science* came forward to publish these findings through a special section. The effort made by the editorial team is commendable and let me congratulate and compliment the entire team who have contributed to this effort.

I am sure that this special section will benefit the aeronautics community in the country.

S. Pandian
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