



News release

New Swiss Re Corporate Solutions publication examines how satellite constellations impact space risk

- Swiss Re Corporate Solutions' [publication](#) focuses on new satellite constellations and their impact on the increasingly dynamic space environment
- Publication examines the increasing number of space objects in orbit and their profound effect on the space business landscape
- Report focuses on how the insurance industry responds to new challenges from constellations in low Earth orbits

Zurich, 17 July 2018 – Over the next 10 years, the number of active satellites in orbit is set to multiply. New satellite constellations that deliver global services like Earth observation, internet connectivity and voice communications are spurring this development. Lower orbits in particular are becoming increasingly populated and littered with debris, putting satellite operations at risk of collision. In fact, orbital debris makes up over 90% of the tracked objects orbiting the Earth today.

Drawing on expertise from the technical, legal and insurance disciplines, a new study from Swiss Re Corporate Solutions explores the implications for collision risk in low Earth orbits (LEO). It highlights legal challenges such as how liability may be attributed in case of collision and examines how the insurance industry is responding to the needs of increasingly complex satellite operations. The catalogued orbital population has grown by 19% since 2011 to around 19 000 objects, with the greatest increases among operational payloads and fragmentation debris.

Jan Schmidt, Head Space at Swiss Re Corporate Solutions, says: "With more and more constellations being deployed in LEO, the insurance industry is facing new challenges. Typically, insurers have provided insurance products that respond to total loss or damage to large, high-value communications satellites in Geostationary orbit. Today we are seeing increased demand for products offering similar financial protection but for constellations made up of hundreds or even thousands of satellites operating in LEO."

The space environment is evolving

Due to rapid advances in technology and developments in manufacturing capability, many new private sector players are now leading space operations in LEO. According to the United Nations, the private sector leads 70% of space activity. Satellite constellations, especially in LEO, could cause the greatest disruption to space traffic and how space is used. Constellations – with up to hundreds or thousands of satellites working together – provide a so-called overall mission effect. As opposed to single satellites, constellations aim to offer complete spatial coverage across the Earth at a high revisiting rate.

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In a LEO constellation with multiple satellites orbiting the Earth multiple times a day, collision risk is a significant consideration for insurers. Given the heightened probability of debris impact in LEO, insureds, especially in the most exposed regions at around 800 km altitude, should give consideration to damage to their satellites from debris impact. The report shares valuable insights into the current ambiguity in satellite anomaly and failure attribution, debris population characterisation and lethality from debris impacts.

To date, issues of collision avoidance, situational awareness and deorbiting of decommissioned satellites have been in the background of insurers' overall risk assessment for both Geostationary orbit (GEO) and LEO insurance programmes. In the future, the probability and consequence of collision are likely to become primary considerations when underwriting this highly specialised class of business.

The report, a sequel to its [first publication](#) on space debris in 2011, is co-authored by experts in the field, namely Philip Chrystal, Senior Claims Expert at Swiss Re Corporate Solutions; Dr. Darren McKnight, Technical Director at Integrity Applications Incorporated in the US; and Pamela L. Meredith, Chair of the Space Law Group, at Zuckert Scoutt & Rasenberger LLP, Washington, DC, US.

Swiss Re Corporate Solutions serves the space industry by providing financial protection from a wide range of risks in the area of launch and in-orbit insurance coverages of satellites, including multi-year policies and tailored insurance programmes. The company has a dedicated space team based in Zurich, Switzerland. For more information about Swiss Re Corporate Solutions' space coverage, please contact your insurance agent or broker or visit Corporatesolutions.swissre.com.

Swiss Re Corporate Solutions

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