**Net Zero Space**

At the occasion of the 4th edition of the Paris Peace Forum, actors from all over the world concerned by the long-term sustainability of outer space have launched the “Net Zero Space” initiative. From satellite operators to launchers, from space agencies to academia and the civil society, all these stakeholders gathered to call to achieving sustainable use of outer space for the benefit of all humankind by 2030 by taking concrete actions so as to tackle the pressing challenge of reducing debris orbiting Earth.

A view of the earth from space

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**“Net Zero Space” Declaration**

Activities in outer space have entered a new era of growth, creating new possibilities for human development and the protection of Earth. However, the amount of orbital debris is increasing dangerously. This trend threatens humanity’s ability to benefit from outer space by increasing the risk of collision for space assets, further affecting the safety and sustainability of space operations, and increasing the cost of access to the most useful orbits.  
  
Article I of the Outer Space Treaty of 1967 provides that the exploration and use of outer space are “the province of all [hu]mankind”. The protection of Earth’s orbital environment should be at the center of all space activities in order to guarantee that current and future actors will continue to have access to and use of this domain. It is therefore critical to ensure the sustainable development of both public and private space activities, to protect the integrity of existing and future objects in orbit, and to maintain equitable access to outer space for all. Our common goal is to ensure safe space operations and the long-term sustainability of outer space activities. To do so, we seek to adopt appropriate mitigation and remediation measures in all space operations from the outset, taking into account the distinctive features of the different orbits used for space operations.  
  
We share the conviction that this goal can only be achieved by international and multi-stakeholder cooperation through gathering forces from the private sector, civil society, and academia, as well as public authorities and regulators. All entities operating in orbit, or contributing on Earth to space operations, have a part to play in this task.  
  
On-going scientific research from national and international bodies indicates that collective, concrete steps must be taken to prevent a rapid degradation of Earth’s orbital environment. By launching the “Net Zero Space” initiative, we are calling for a global commitment to achieving sustainable use of outer space for the benefit of all humankind by 2030.  We recommend urgent action from 2021 onwards to rapidly contain and then reduce the ongoing pollution of Earth’s orbital environment:

* by avoiding further generation of hazardous space debris, and
* by remediating existing hazardous space debris.

We are calling on all stakeholders worldwide to join us in supporting the “Net Zero Space” initiative. When announcing their support, all stakeholders will commit to declaring concrete, tangible example(s) of actions they took, or are planning to undertake, in accordance with the scale of their operations and within their means so as to contribute to the “Net Zero Space” goal.  
  
In order to follow up on the progresses made to reach this goal and to keep incentive in this regard, we ask the Paris Peace Forum to host the “Net Zero Space” initiative secretariat, to report annually on the status of the initiative and promote subsequent steps towards the realization of the “Net Zero Space” goal.  
  
**List of supporters:**  
  
[Arianespace](https://www.arianespace.com/)

* Arianespace has pledged to reduce its orbital footprint, with the Vinci restartable engine which will facilitate the deorbitation of Ariane 6 upper stages at the end of the launch sequence. [You can read the press release here](https://www.arianespace.com/press-release/arianespace-signs-net-zero-space-agreement-reflecting-its-proactive-commitment-to-sustainable-space/).

[Astrocast](https://www.astrocast.com/)

* Astrocast has pledged to strengthen its ongoing commitment to sustainability by 1/ ensuring all satellites are equipped with an on-board propulsion system to perform vital manoeuvres in order to prevent collisions and therefore avoid contaminating the cosmos and 2/ by further developing re-entry analysis to make sure that satellites can safely de-orbit. [Read the press release here](https://www.astrocast.com/news/astrocast-joins-net-zero-space-initiative/).

[Astroscale](https://astroscale.com/)

* Astroscale has pledged to 1/ develop innovative and scalable solutions across the spectrum of on-orbit servicing, and 2/ build the economics and working with government and commercial stakeholders to develop norms, regulations, and incentives that support the responsible use of space. [Read the press release here](https://astroscale.com/net-zero-space-declaration-announced-at-4th-annual-paris-peace-forum/).

[Avanti](https://www.avantiplc.com/)

* Avanti has pledged to 1/ to keep safely operating its spacecraft to avoid proliferation of space debris, in particular thanks to its framework to mitigate the risks of satellite relocations and other non-routine operations, 2/ to keep collaborating with trusted partners and fellow operators to enable better coordination and to mitigate the risks of proximity operations and 3/ to continue its ongoing support to the development of new guidelines and best practices. [You can read the press release here](https://www.avantiplc.com/news/avanti-joins-paris-peace-forums-net-zero-space-initiative/).

[CGSTL/Chang Guang Satellite](http://www.charmingglobe.com/EWeb/boot_page.aspx)

* CGSTL has pledged 1/ to push forward cooperation with relevant organizations and enterprises, strictly comply with and cooperate with relevant space debris requirements, and promote the realization of effective space traffic management and 2/ to develop technologies for monitoring space debris and space rendezvous events using earth observation satellites, continue to promote the development of relevant innovative technologies in the field of space debris monitoring, and ensure the safety and sustainability of space environment. [Read the press release here](http://www.charmingglobe.com/EWeb/news_view.aspx?id=768).

[ClearSpace](https://clearspace.today/)

* ClearSpace has pledged to 1/ design novel in-orbit services to enhance sustainability and move towards a circular space economy, 2/ develop cost-effective debris removal and spacecraft disposal solutions and work with all stakeholders to deploy them, 3/ conduct our in-orbit services missions on a net zero basis, and our removal and disposal missions on a net negative basis, and 4/ raise awareness around collision risk to help shape future policies towards a net zero space ecosystem. [Read the press release here](https://clearspace.today/clearspace-joins-the-net-zero-space-initiative-to-reduce-orbital-junk/).

[Clutch Space Systems](https://www.clutchspace.com/)

* Clutch Space Systems has pledged to 1/ provide persistent connectivity and location awareness to satellites in low earth orbit for total immediate command and control for supervised autonomy to enable safe and sustainability focused satellite operators and to 2/ provide satellite ground stations with 1% of the carbon footprint of the equivalent traditional system.

[CNES (National Centre for Space Studies)](https://cnes.fr/en)  
  
[DarkStar Aerospace](https://darkstaraero.space/)

* DarkStar Aerospace has pledged 1/ to utilise their Ground Stations & multi-spectral Tracking Stations in the MENA region to monitor space debris and assist the global community to minimise space hazards from a region where humanity has little coverage and 2/ to develop new satellite technology for monitoring LEO & GEO space to assist with the removal of space debris and minimize further hazards. And to continue developing hybrid propulsion and reusable rocket systems with our Launch Service Providers to minimise our impact upon our environment and space. [You can read the press release here.](https://darkstaraero.space/news-net-zero-space-initiative/)

[Digantara](https://www.digantara.co.in/index.php#nextone)

* Digantara has pledged 1/ to develop an end-to-end solution to address the difficulties of space operations and situational awareness through its “Space – Mission Assurance Platform” (aka Space – MAP). Space – MAP will serve as a one–stop solution for all future space operations and research. It also pledges 2/ to actively work with other stakeholders towards building a sustainable near Earth orbit and safer access to space.

[EgSA (Egyptian Space Agency)](https://egsa-space-technology-portal.com/?AspxAutoDetectCookieSupport=1)  
  
[Enpulsion](https://www.enpulsion.com/)

* ENPULSION has pledged to 1/ continue to support satellite operators before and after the launch of their spacecraft and ensure the success of their deployment strategies, 2/ promote sustainable practices for the end-of-life disposal of satellites, especially for constellations, 3/ and proactively support awareness raising activities on Space Sustainability, especially on the issue of space debris, through PR efforts and sharing in-house expertise.

[E-Space](https://www.e-space.com/)

* E-Space has pledged to design satellite systems with sustainability at the heart of its architecture by maintaining small cross-sections to make them far less vulnerable to collision, preventing the creation of new debris in the event of a collision, and actively cleaning space by entraining and de-orbiting small debris when possible. [You can read the press release here](https://www.e-space.com/news/e-space-joins-the-paris-peace-forums-net-zero-space-initiative-to-reduce-debris-in-orbit).

[Euroconsult](https://www.euroconsult-ec.com/)

* Euroconsult has pledged to a practice within its consulting team to address space situational awareness as to be in a position to support private and public partners in their understanding of the current and future situation of Earth’s orbital environment, situation of the market and of the actors landscape, in order to highlight the importance of the long-term sustainability of outer space.

[EUSST](https://www.eusst.eu/)

* EU SST provides operational space safety services that safeguard space infrastructure, including the European Union flagships Galileo and Copernicus, from the risk of collision and prevent the proliferation of space debris. These services will become available to users beyond Europe in the near future. EU SST has also pledged to work on the development of additional public services to improve space traffic coordination and ensure safe space operations, for instance, supporting space debris mitigation and remediation activities. [Read the press release here](https://www.eusst.eu/newsroom/eu-sst-joins-net-zero-space-initiative-protection-earth-orbital-environment/).

[Eutelsat](https://www.eutelsat.com/en/home.html)

* Eutelsat has pledged to implementing a company-specific “Space Debris Mitigation Plan”, an in-house initiative constantly updated since its launch in 2005, ensuring compliance with the strictest standard related to sustainable space operations. With this plan, Eutelsat has achieved a success rate in excess of 95% for deorbiting its spacecraft. The Group has also committed to work closely with the French authorities on updating France’s national space law to take account of the new challenges in space, including debris. [Read the press release here](https://www.eutelsat.com/en/news/press.html#/pressreleases/eutelsat-joins-the-net-zero-space-initiative-to-combat-space-debris-3144020).

[Exotrail](https://exotrail.com/)

* Exotrail has pledged 1/ to keep on enhancing in-space mobility with long term solutions, notably with a reusable SpaceVan™ that will enable the company not to create anymore satellite debris by 2030 and 2/ by the end of the decade, to lean towards new services that will enable a safer use of space, such as debris removal.

[GISTDA](https://www.gistda.or.th/home.php)  
  
[GMV](https://www.gmv.com/en)

* GMV has pledged to 1/ further enhance and promote the use of its commercial collision avoidance services provided through the focusoc Ops Centre and 2/ continue its work on the development of new solutions to ensure the safety and sustainability of space operations towards future effective space traffic management. [Read the press release here](https://www.gmv.com/en-es/communication/press-room/press-releases/space/gmv-joins-net-zero-space-initiative-eliminate-space).

[Hispasat](https://www.hispasat.com/es/)

* Hispasat has pledged to 1/ implementing a sustainability plan with specific recommendations for a more sustainable operation of its fleet of satellites and 2/ strictly complying with existing space debris guidelines and recommendations, as well as contributing to the development of STM and future regulations on space debris and space sustainability in Europe, in close cooperation with the relevant stakeholders and public authorities.”

[IAASS](http://iaass.space-safety.org/)

* The International Association for the Advancement of Space Safety has pledged to promote and further develop the IAASS/IASL "Proposal for an Operational and Regulatory Framework to Ensure Space Debris Removal". Don Kessler, retired NASA leading space debris scientist said about the proposal: "I believe it is an interesting framework that may go around many of the policy and legal issues that any single government agency or private company would encounter". [You can read the full proposal here](https://iaass.space-safety.org/wp-content/uploads/sites/24/2021/11/Discussion-Paper-Proposal-for-an-Operational-and-Regulatory-Framework-to-Ensure-Space-Debris-Removal-61.pdf).

[Inmarsat](https://www.inmarsat.com/en/index.html)  
  
[International institute of air and space law](https://www.universiteitleiden.nl/en/law/institute-of-public-law/institute-of-air-space-law)

* The International Institute of Air and Space Law has pledged to educating students and young professionals from around the world about the space law and policy aspects of debris mitigation and remediation, and encouraging and supporting them in their research on these topics. [Read the press release here](https://www.universiteitleiden.nl/en/news/2021/11/iiasl-aanwezig-bij-lancering-duurzaamheidsinitiatief-net-zero-space).

[ISISPACE](https://www.isispace.nl/)

* ISISPACE has pledged to 1/ develop and using disruptive space technologies for debris mitigation and removal, and 2/ comply with the strictest norms regarding sustainable space operations, including Dutch standard of deorbiting objects sent in outer space 25 years after their launch rather than 25 years after their end of life. [Read the press release here](https://www.isispace.nl/news/isispace-is-a-founding-member-of-the-net-zero-space-initiative-and-presents-its-commitment-for-the-future/).

[Kall Morris Incorporated](https://www.kallmorris.com/)

* KMI has pledged to 1/ develop innovative and scalable software and hardware solutions to capture uncontrolled, unrecognized, and unprepared orbital debris, and to 2/ assist the development of in-space servicing, assembly, and manufacturing with government, commercial, and civilian stakeholders for the responsible use of space.

[NorthStar](https://northstar-data.com/)

* NorthStar has pledged to help facilitate safe and sustainable operations through the delivery of high-fidelity commercial space services for satellite operators. NorthStar’s Space Information & Intelligence services will be launched in 2023 bringing the first space-based commercial information service to cover all near-Earth orbits. [You can read the press release here](https://northstar-data.com/northstar-earth-space-endorses-the-net-zero-space-declaration-of-the-paris-peace-forum/).

[OrbitX](https://orbitalxploration.com/)

* OrbitX has pledged to advance sustainable Filipino space access by providing the Philippines and the Filipino market with new sustainable technologies such as the Haribon SLS-1 renewable rocket all our auxiliary projects. [You can read the press release here.](https://orbitalxploration.com/update/orbitx-signs-net-zero-space-agreement-of-paris-peace-forum-pledging-full-commitment-to-sustainable-space-access/)

[Planet](https://www.planet.com/)

* Planet has pledged to 1/ always sharing the highest accuracy satellite ephemeris data available to us with the broader operator community and to 2/ publishing results of analyses on using differentiate drag as a COLA technique (and continuing to improve upon its utilization).

[SCOUT](https://scout.space/)

* SCOUT has pledged to 1/ support sustainable outer space through development and provision of services that increase space situational awareness for more precise and de-risked operations, and to 2/ collaborate with all stakeholders to ensure development of norms and policies that create responsible use of space.

[Share my Space](https://www.sharemyspace.space/)

* Share my Space has pledged to 1/ foster independent capacities regarding space debris detection, automated maneuvers technologies and autonomous satellite navigation, and 2/ develop an independent database of more than 150,000 objects to increase our common knowledge on the state of Earth’s orbital environment.  [Read the press release here](https://www.sharemyspace.space/news20).

[Skyroot Aerospace](https://skyroot.in/)  
  
[SpaceAble](https://spaceable.org/)

* SpaceAble has pledged to provide the space community with two breakthrough services, backed on a full-fledged SSA solution, to enhance sustainability of Low Earth Orbit operations by an order of magnitude. In terms of preventions, SpaceAble provides the space community with **1/** the commercialization in 2022 of ISSAN, a SSA software solution dedicated to aggregate and process space data including space weather to limit the risk of failures in LEO, and **2/** with the test in 2023 of the Orbiter, a low Earth orbit inspector satellite dedicated to complement telemetry and assess in near real time the status of satellites in low Earth Orbit. In terms of remediation, SpaceAble will provide the space community with a subscription solution to insurance contracts that would cover space debris collection missions for deorbiting debris, faulty satellites or launcher part.

[Viasat](https://www.viasat.com/)

* Viasat has pledged to develop comprehensive models that 1/ employ quantitative metrics and measurement tools that enable a full evaluation of the current environment in LEO, the expected evolution of that environment, and the expected consequences of more intensive uses planned for those orbits, and 2/ assist in the design and operation of sustainable spacecraft and constellations, as exposed in Viasat’s recent [White Paper](https://www.viasat.com/content/dam/us-site/space-and-network-operations/documents/Viasat_White_Paper_Managing_MegaConstellation_Risks_in_LEO_Updated_Jan%2022.pdf). [You can read the press release here](https://www.prnewswire.com/news-releases/viasat-joins-the-paris-peace-forums-net-zero-space-initiative-301442819.html).

*For more information or to support the initiative:*[*netzerospace@parispeaceforum.org*](mailto:netzerospace@parispeaceforum.org)