

18 November 2020: “Space Debris – 2020 vision?”

Key Topic: Does the benefit of high technology justify the cost to the environment.

Are we really Looking after Space?...

50 years ago, Neil Armstrong’s first footprint on the moon was beamed around the world “live via satellite”. Today, that same caption “Live via satellite” is flashed on screen to excuse the slightest imperfection of the transmitted image.

Complacency and the throw-away society has led us to expect to have the best of everything. But the cost is mounting up and, unless we do something dramatic, we risk:

- choking our most precious asset – the planet we live on;
- blocking our opportunity to explore the other planets of our solar system and the Deep Space of the Cosmos.

How did we get to this position?



The picture shows the current situation and is based on 10,000+ satellite launched to date in orbit from 200 miles to 22,300 miles altitude. The debris cloud around them amount to more than a million objects of greater than 1cm and 100x that figure more smaller items. From flakes of paint and tools to whole satellites and their spent launch vehicles. That’s 10 times more satellites than had been launched by the time Armstrong put his foot down. Plans to put a further 45,000+ (with their associated launch vehicles) up there by 2036 in constellations far larger that we have ever previously contemplated are cause for concern.

Meeting challenges head-on...

If these are successful, then we will all benefit from the enhanced communications infrastructure they will enable:

- Low latency broadband at Hyper-fast speeds
- WELL REGULATED INFRASTRUCTURE to accommodate:
 - Internet of Things
 - 5G,
 - Autonomous Cars and
 - AI applications for all

But if they are not successful, we will have created a Puck Like “Girdle around the earth” with:

- Satellite passing overhead every 30 seconds.
- Unmanaged, unregulated infrastructure.
- Increased risk of conjunction creating:
 - More debris in orbit leading to
 - A Kessler effect blocking further satellites in orbit
 - No way out of earth’s atmosphere for space exploration by man
 - Orbital interference for astronomical deep space exploration.

The Seminar will address the Satellite Industry’s approach to:

- National / International Regulation
- Cross industry National / international co-operation
- Risk Assessment / Acceptable failure rate
- Control & Management of Mega constellations
- De-orbiting of time expired satellites
- The practicality of clearing space debris

***... if you think about Plastic in our Oceans,
... that is the same for Debris in Space!!!***

This evening seminar will be the 21st annual prestige seminar organised by EMSTA CIC as a joint event with various professional engineering and science Institutions.

This free event is hosted by the University of Hertfordshire and will commence with light refreshments and networking in an informal environment.

An important element of the prestige seminar is the final chaired discussion when the audience can put forward their questions to the speakers and debate some of the issues discussed.

How do I attend? Entry is free, but advance registration is required.

Book online: EMSTA’s online booking site will be active from Spring 2020. For up-to-date information about the Seminar and booking please visit www.emsta.org.uk/seminars.php

We would be particularly pleased if you brought a young person to this event: they may be involved in sorting out this problem.

To discuss EMSTA’s events and STEM project support, contact Roger Boddy, Chairman EMSTA, 07956 109337 or by e-mail chairman@emsta.org.uk.