

Space News

looking back over

January 2020

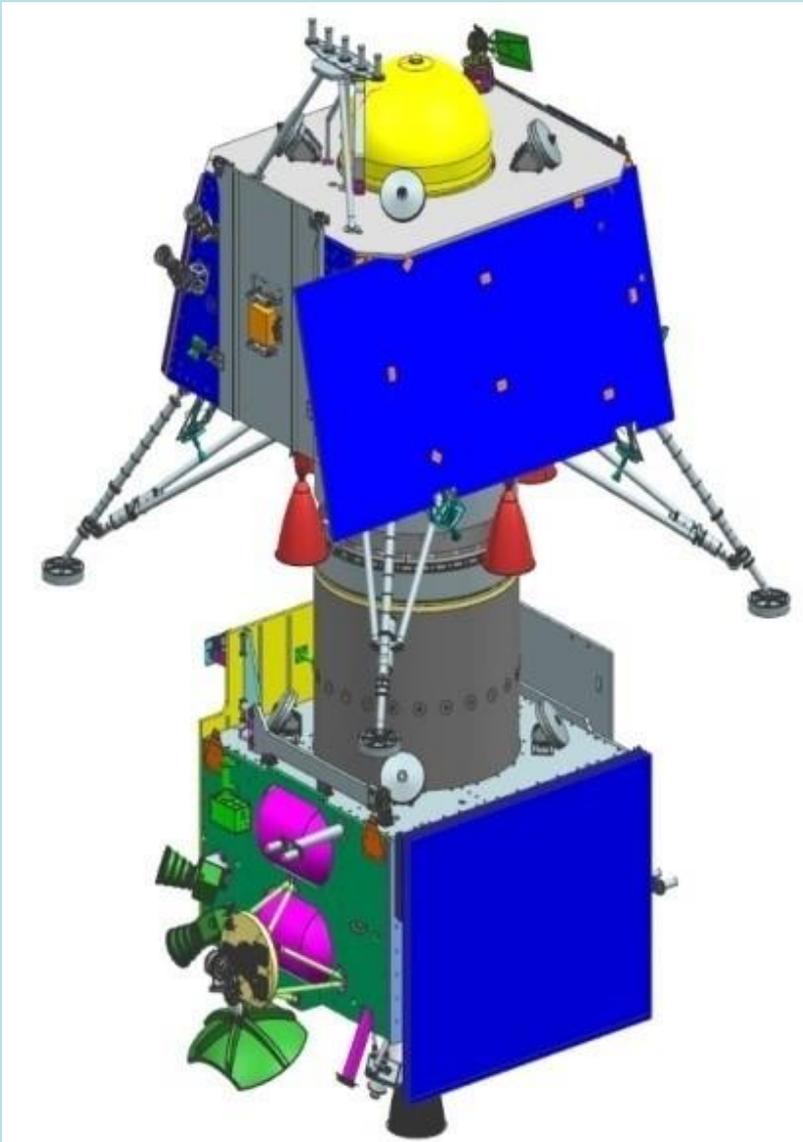
Super-High Clouds are **COLD!!**



1st Jan: Polar stratospheric clouds (PSC) are rare. Normally, the stratosphere has no clouds at all. A few times each winter, however, icy clouds can form when the temperature in the stratosphere drops **below -85C**.

Such staggeringly-low temperatures are required to help sparse water molecules stick together. This winter, the clouds have been appearing daily since late December, a sign of unusually cold stratospheric conditions.

If at first . . .



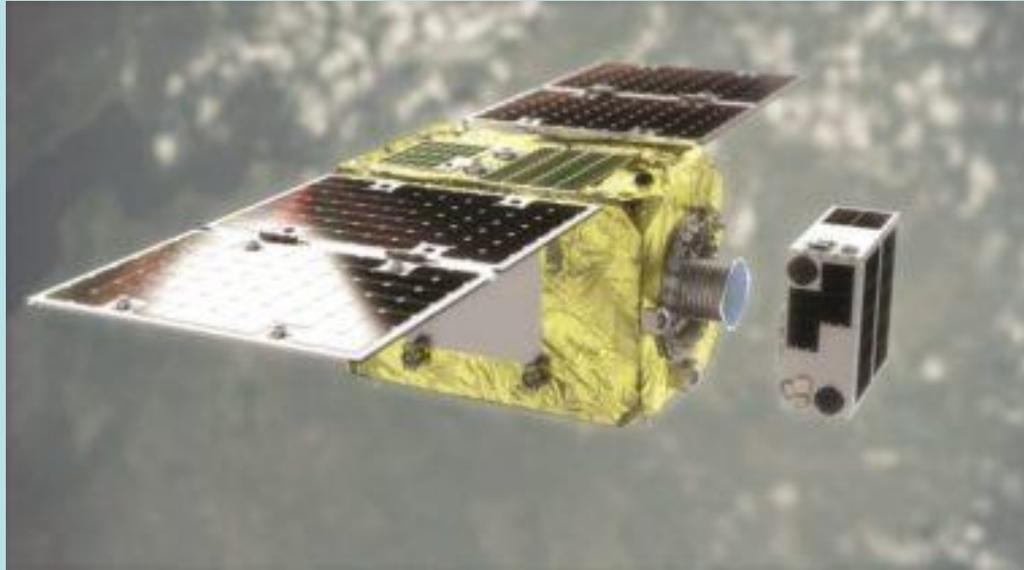
1st Jan: India has announced plans for a **third** lunar mission, months after its last one crash landed on the Moon's surface on 7th September 2019.

India's orbiter remains in Lunar orbit.

The chairman of India's **ISRO** space agency, K Sivan, said work was going "smoothly" on the Chandrayaan-3 unmanned mission, aiming to launch it to the Moon in 2020 but it "may spill over" into 2021.

If successful, it would make India the **fourth** country to achieve a soft landing on the Moon, and boost its credentials as a low-cost space power.

ASTROSCALE to provide End-of-Life service



Currently in Orbit:

~5000 satellites launched

~2000 active satellites

~3000 unused/dead

Other Junk includes:

~34,000 large objects

Over 120 million objects

less than 1cm across...

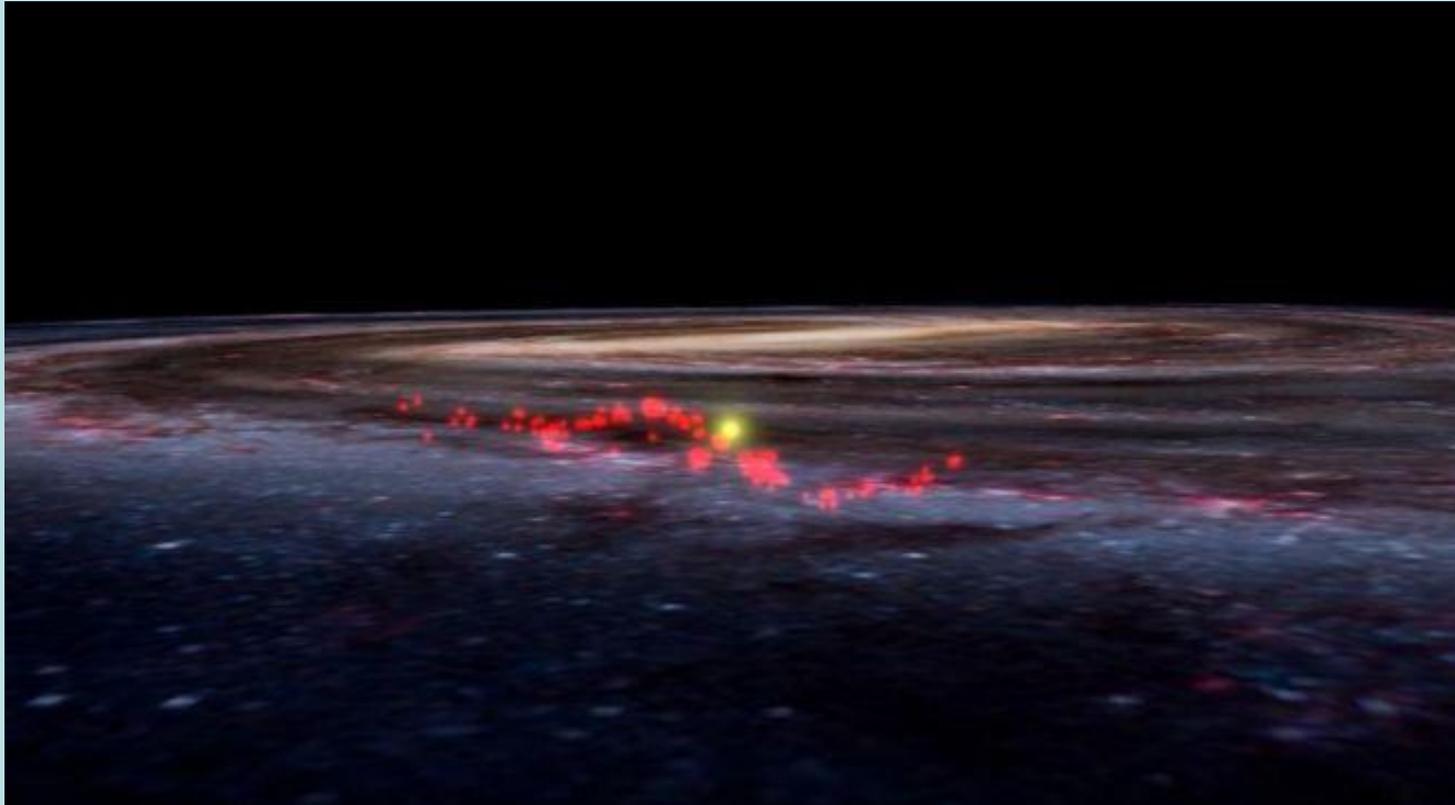
Moving at 8km/sec!

3rd Jan: Within a year, Japanese start-up **Astroscale** plans to begin a complex series of demonstrations to show how their spacecraft can grab a piece of space debris and dispose of it in the atmosphere.

If the 2020 End-of-Life Service by the 'ELSA-d' demonstration mission is successful, it could prompt satellite operators to begin designing spacecraft for in-orbit retrieval and convince space agencies and constellation operators to set aside funding for the safe disposal of their spacecraft after failure or end of mission.

Gaia Data reveals a “Star Nursery” in our Galaxy

“Radcliffe
Wave”



Join
the
red
dots

7th Jan: An international team has analysed data from the Gaia space telescope, launched in 2013, to assemble a new map of the Milky Way. They discovered a vast structure in our galaxy, made up of many interconnected "nurseries" where stars are born. The long, thin filament of gas is 9,000 light-years long and 400 light-years wide. It lies around 500 light-years from our Sun, so relatively close in astronomical terms.

30-Storey NASA Moon Rocket prepared for Testing



5th Jan: The Space Launch System (SLS) is a critical part of the space agency's **Artemis** programme, which aims to return Americans to the Moon by 2024. The first core stage for Nasa's "mega-rocket", the SLS, has left its factory in New Orleans by barge for comprehensive tests in Mississippi to assess its readiness for launch.

UK meteorite hunt thwarted by damage



Rare Antarctica Iron Meteorite

9th Jan: A bid to find hidden iron meteorites in the Antarctic has been beaten into submission. The Univ. of Manchester team had developed a detection system it hoped would reveal the metal objects sitting just under the ice surface, but after 18 days of survey work, the equipment was broken beyond repair. It seems the components couldn't cope with the battering they received as the detector was dragged across hard ice. They were still able to find over 60 meteorites to bring back to UK.

More B****y Shiny things in orbit!!



9th Jan: SpaceX has launched another 60 satellites in its Starlink network. This brings to 182 the number of shiny reflective satellites the firm has put in the sky as part of its plan to provide a global broadband internet service. A meeting of the AAS in Hawaii was told that the Company was seeking ways to make the platforms much less intrusive. One of the recent batch was given a new coating that will hopefully reduce the reflectivity of the Starlinks and make them less of a problem to astronomers. Results awaited...

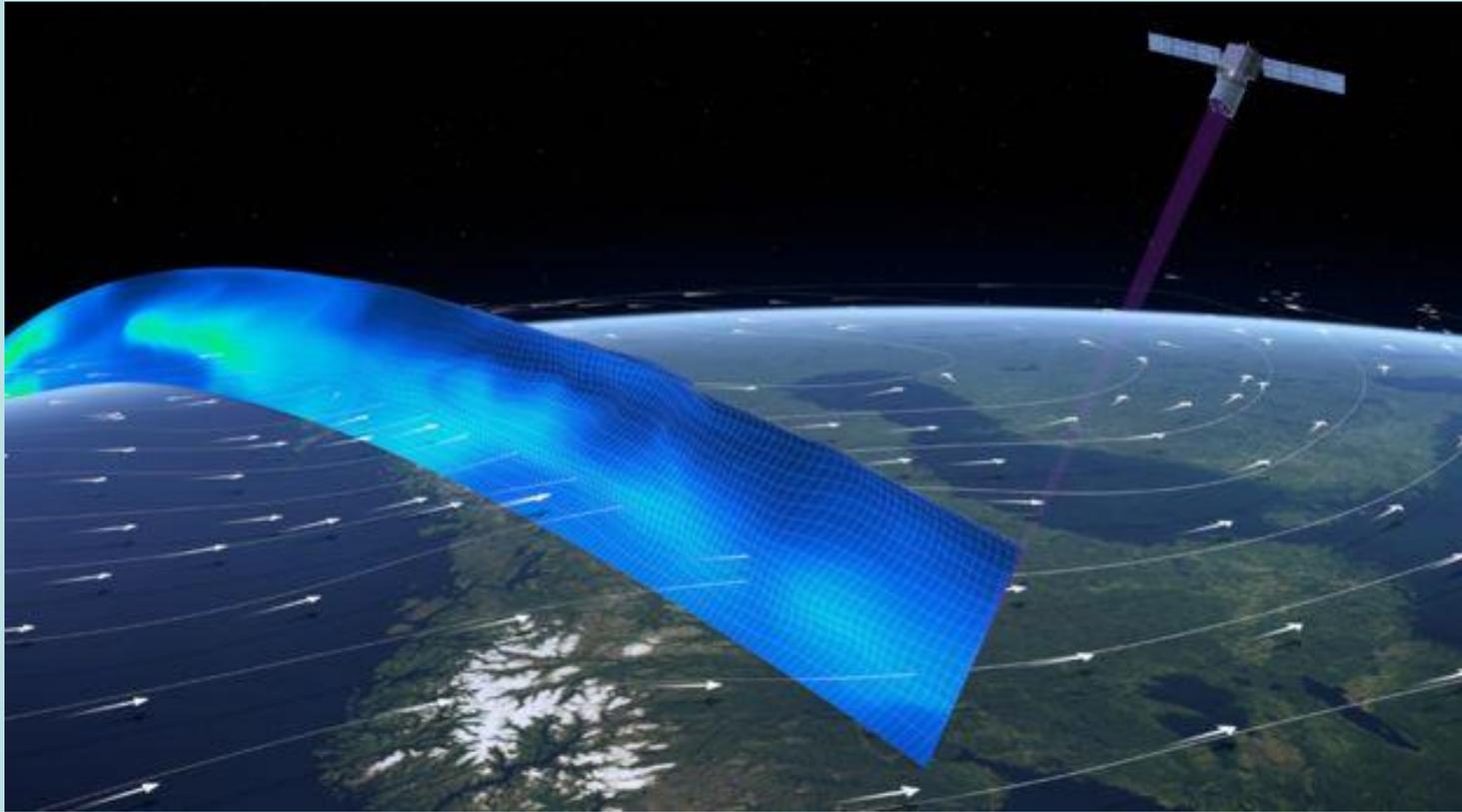
“Wolf Moon” and an Eclipse together



10th Jan: Skywatchers were treated to the first full moon of 2020 - known as a "wolf moon" - at the same time as a lunar eclipse.

It was only a partial eclipse – and better observed from much further west – but those who had a clear sky saw part of the Moon darkened as it passed into part of the Earth’s shadow. Views above from Menwith Hill near Harrogate and from Saudi Arabia (on right).

Weather forecasts start using space laser wind data



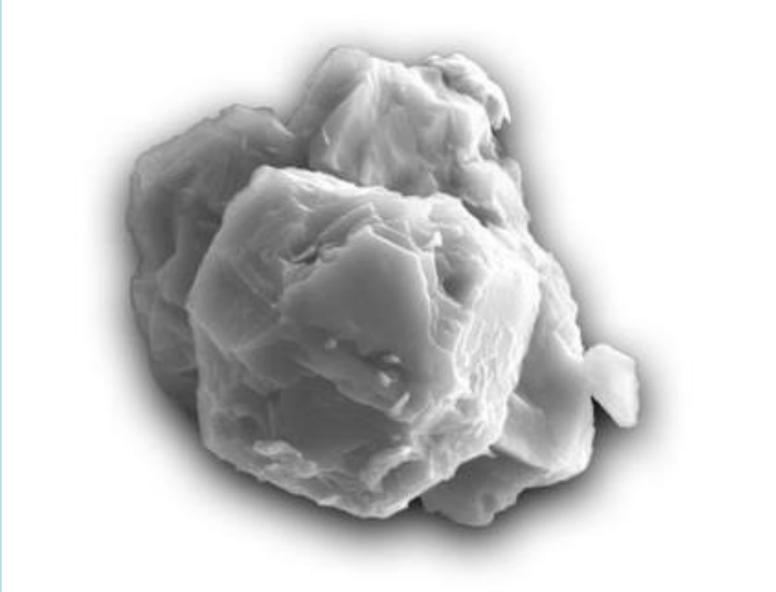
10th Jan: Europe's wind-measuring satellite, **Aeolus**, has reached a key milestone in its mission. The spacecraft monitors the wind by firing an ultraviolet beam down into the atmosphere and catching the light's reflection as it scatters off molecules and particles carried along in the air. The European Centre for Medium-Range Weather Forecasts says the information is now robust enough for routine use, feeding the data into its numerical models that look from one to several days ahead.

World's longest aircraft to get longer



11th Jan: A new design of the world's longest aircraft has been revealed - meaning it will be 5% longer. Hybrid Air Vehicles (HAV) said that "nose to tail" changes to the in-development **Airlander 10** included a rounder front and a new tail section. The new aircraft will be about 320ft long and the cabin underneath can be built to different lengths. Tom Grundy, HAV's chief executive officer, said it would also be more fuel-efficient. The Company has yet to choose a new operating and production base.

Pre-Solar Grains found in AUS Meteorite



13th Jan: Researchers from the US & Switzerland analysed 40 pre-solar grains contained in a portion of the Murchison meteorite that fell in Australia in 1969. They began with crushing fragments of the meteorite down into a powder, then dissolving in acid, leaving only the 'stardust'. When stars die, particles formed within them are flung out into space. These "pre-solar grains" then get incorporated into new stars, planets, moons and meteorites. This is the **oldest material** known to exist on Earth - dust grains within the meteorite (which fell to Earth in the 1960s) that are as much as **7.5 billion years old**.

“Come Fly with Me...”



13th Jan: Japanese billionaire **Yusaku Maezawa** is looking for a female "life partner" to accompany him on Space X's maiden tourist voyage to the Moon. The fashion mogul, 44, is set to be the first civilian passenger to fly around the moon on the Starship rocket. Planned for 2023, the mission will be the first lunar journey by humans since 1972. In an online appeal, Mr Maezawa says he wants to share the experience with a "special" woman.

**** Sorry – closing date for applications was 17th January...*

Really Positive 'Work-Experience' Result



16th Jan: 17-year-old Wolf Cukier was helping out at NASA in the United States during his 2019 summer holidays. He was given the job of checking images from its planet-seeking satellite TESS when he noticed something strange. It turned out to be a **new planet**, 1,300 light years from Earth. This was only on his 3rd day on the placement. The planet is confirmed as almost 6.9 times as large as Earth. It's name? TOI 1338 b. NOT "Wolftopia"!

Asteroid or Volcanoes – Who did it?



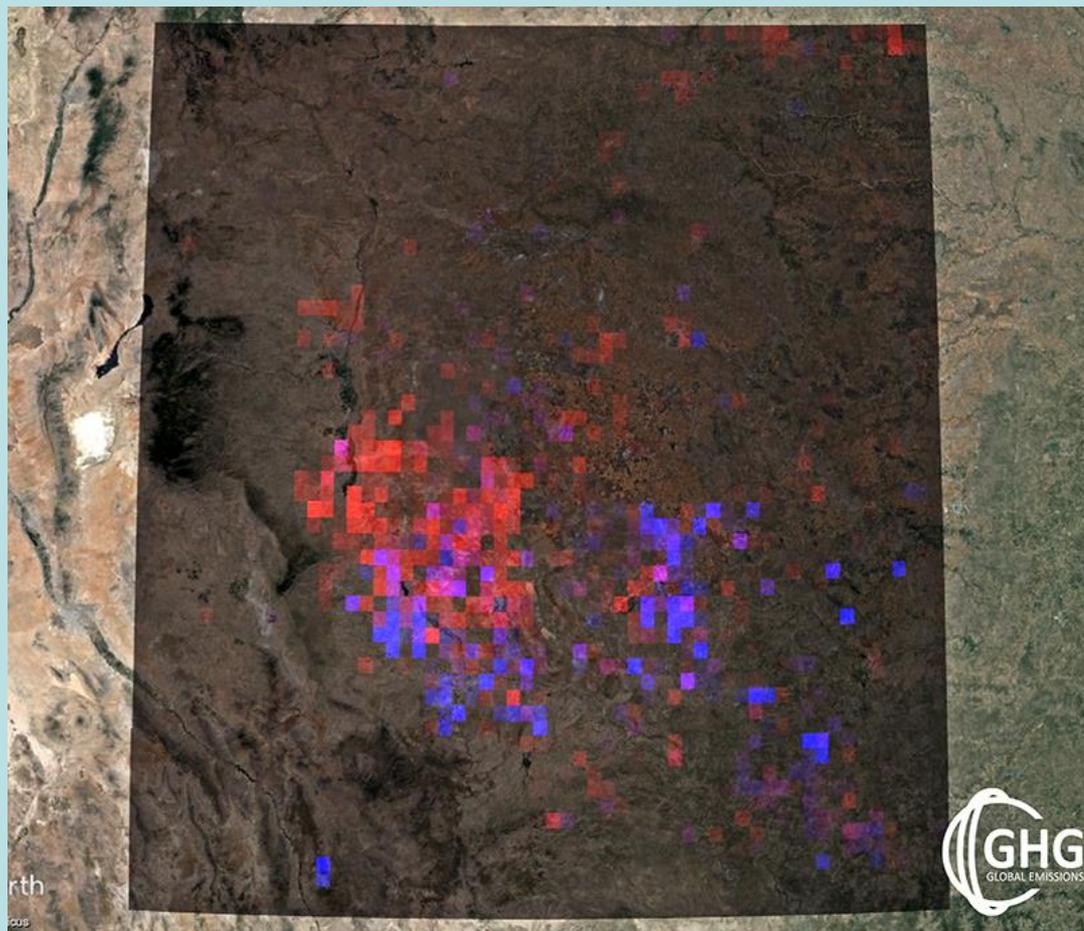
17th Jan: What wiped out the dinosaurs? For a long time the debate has been between massive volcanoes in India (Deccan Traps) or one great big asteroid collision that caused the sun to be blotted out, the temperature to fall and the giant lizards to basically ‘freeze to death’ in this environment. However, the timing is wrong for the volcano theory. Drilling into the North Atlantic seafloor to retrieve its ancient muds showed that the volcanoes were over thousands of years before the asteroid arrived. So that’s it then!

The only way to test for launch failure . . .



19th Jan: SpaceX conducted a test of the abort manoeuvre it would use if one of its crew-carrying rockets ever developed a problem during launch. After the launch from KSC, the Falcon-9 vehicle's ascent was deliberately terminated just 80 seconds after lift-off. At this point the Dragon capsule on top fired its escape engines and carried itself clear of the "faulty" booster. Its parachutes brought the crew capsule down to a safe ocean splashdown 30km off Florida. No humans were involved in the practice abort; the only occupants of the Dragon were a couple of Anthropomorphic "test-dummies".

Canadian start-up GHGSat making methane map



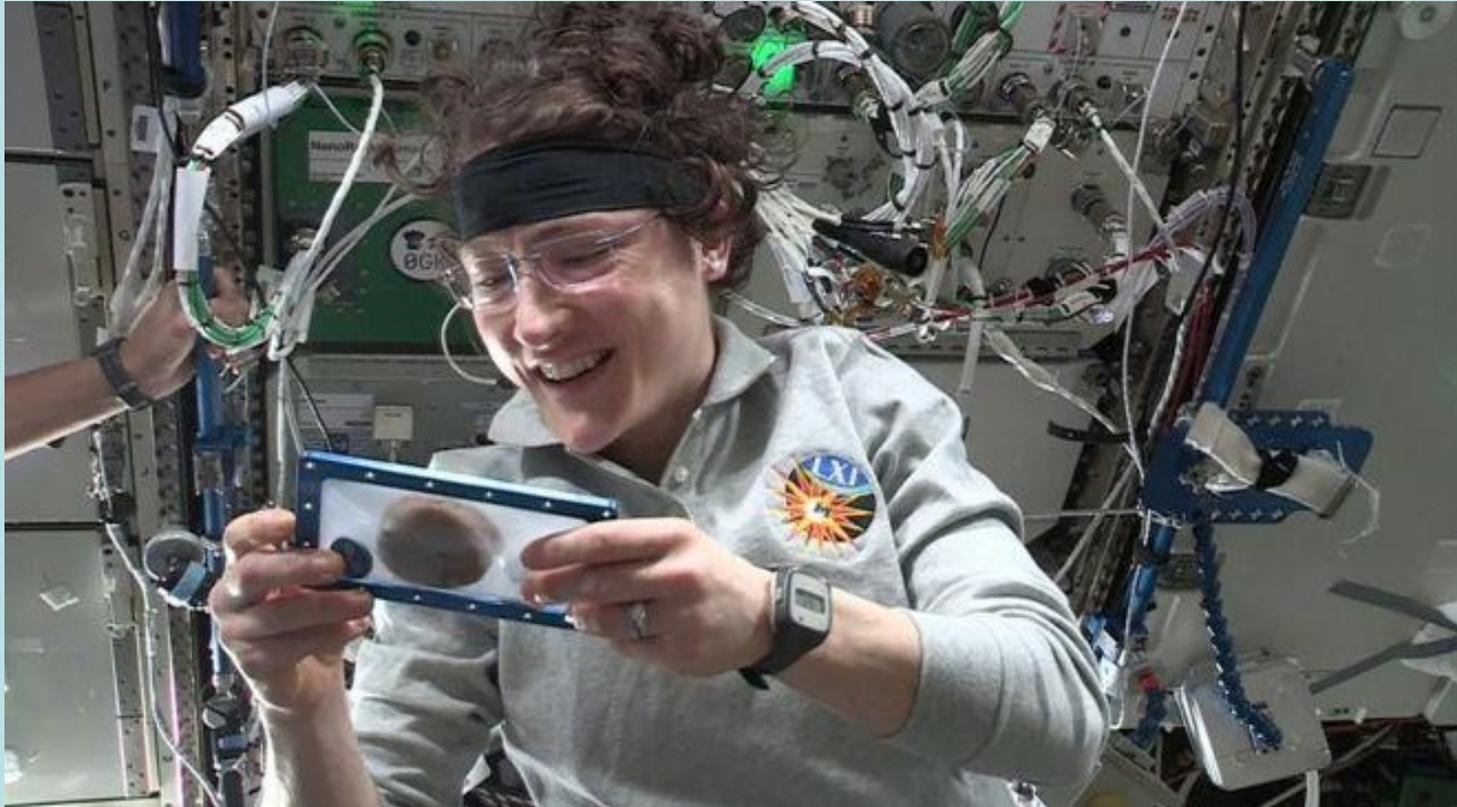
Will be useful for the UN Conference in Glasgow

24th Jan: A Canadian start-up, **GHGSat**, is promising to release a high-resolution map of methane in Earth's atmosphere by the year's end.

They have one spacecraft in orbit currently to monitor the greenhouse gas. Another two are expected to be launched in the next few months.

Montreal-based GHGSat tracks oil and gas operations, alerting owners to any methane leaking from facilities.

Time for a Cookie with your Space Tea...



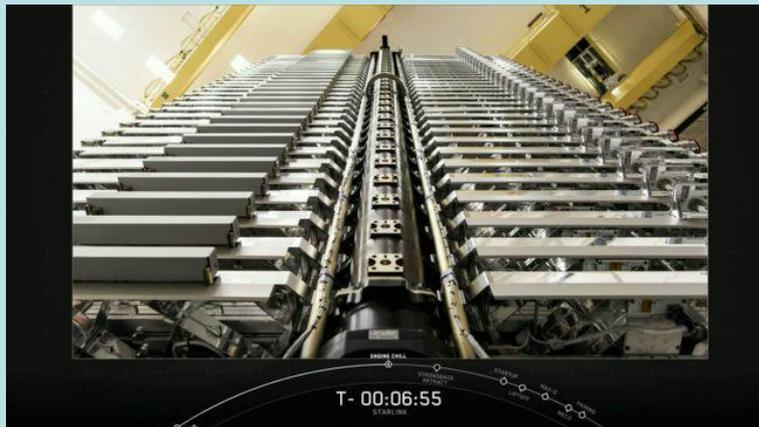
24th Jan: ISS Astronauts have baked **Choc-chip cookies** in a special zero-gravity oven. Sealed in individual baking pouches, three of the cookies were then returned to Earth on the SpaceX Dragon spacecraft. The aim of the experiment was to study cooking options for long-haul trips. Are they good to eat – we don't know! Cooking times in zero gravity need longer – up to 130 minutes. Are they safe to eat? Maybe... ... WTS!!

Test to Destruction is the ONLY WAY...



28th Jan: A prototype of SpaceX's Mars-colonization "Starship" blew its lid in a crucial pressure test for the private spaceflight company. During a cryogenic strength test at the company's South Texas facility at Boca Chica, SpaceX filled the prototype's 30-foot test tank with ultracold liquid nitrogen and pressurized the tank until it "popped." Needing to cope with a pressure of 6bar it did not burst until 8.5bar, an acceptable safety margin.

Another 60 Starlinks in Orbit



28th Jan: SpaceX successfully launched its **fourth** batch of 60 Starlink satellites into orbit and nailed a rocket sea-landing following days of weather delays for the mission. A sooty Falcon 9 rocket made its third flight with this launch. This brings the number of SpaceX internet satellites to 240.

JWST possible launch date slips AGAIN!!



Maybe
July
2021 ?

29th Jan: Among NASA's current projects, the James Webb Space Telescope is no longer considered a priority. The latest report on its progress gave it only a 12% chance of launching on schedule in March 2021. The massive, complex observatory has faced countless budget and schedule overruns: NASA has spent about \$9.7 billion on the project, which has been delayed by more than six years in the past decade. Two issues with the communication system discovered in early 2019 also ate up too much of the project's "padding time".

Send anything interesting you
spot during
February to:
michael@held.org.uk