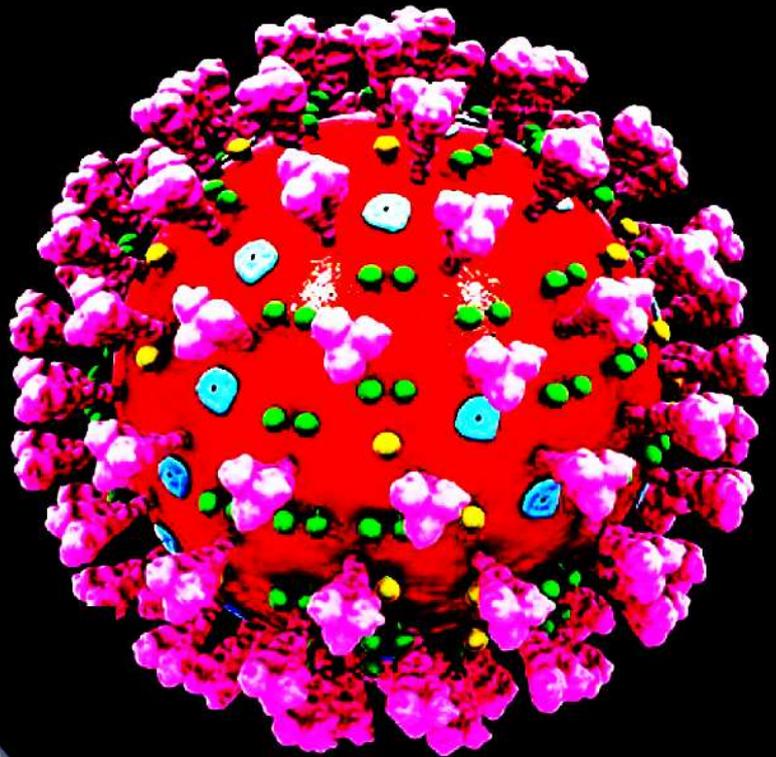


Prime Meridian

(122) March 27, 2020

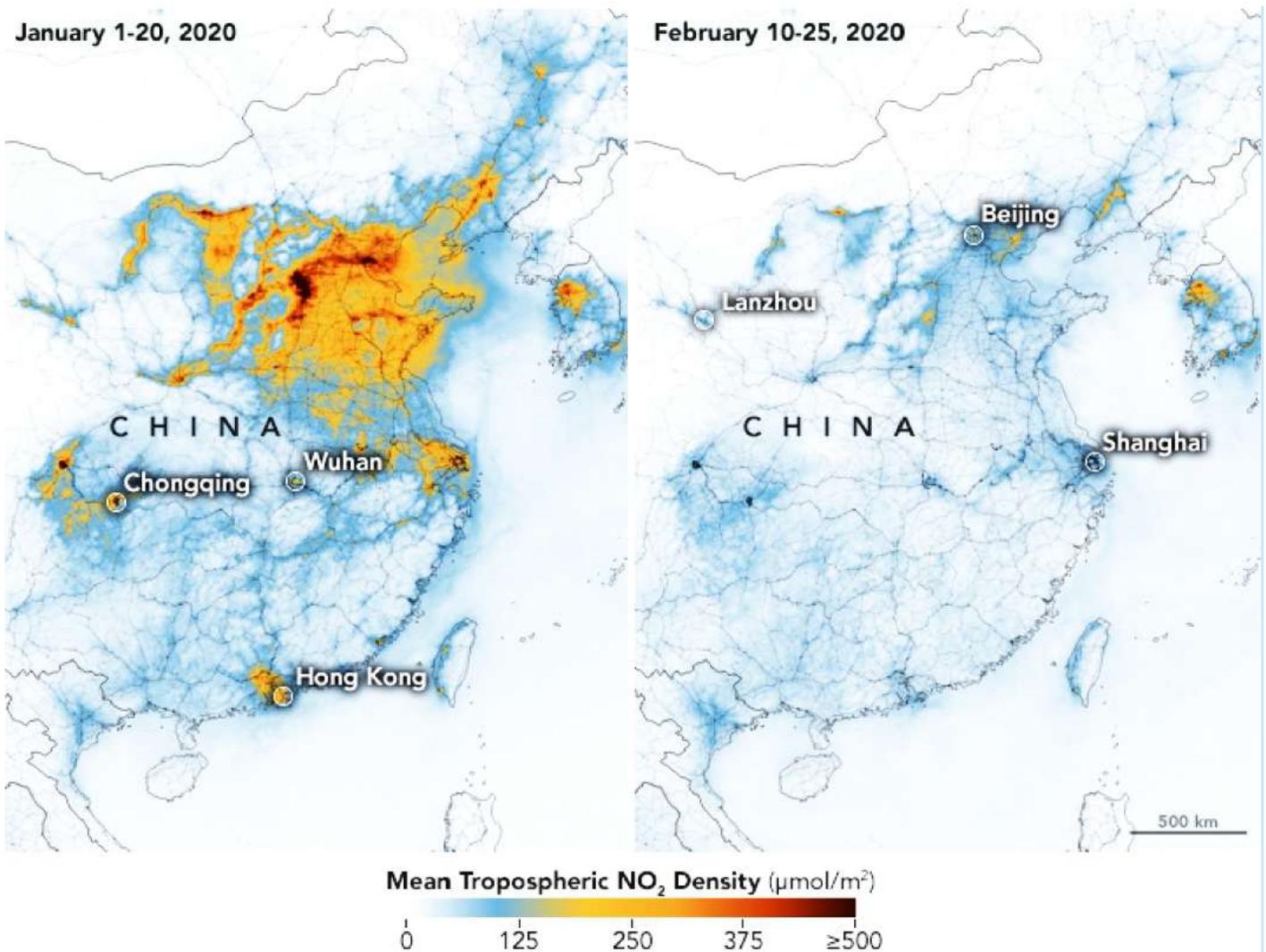
The March Equinox arrived in a world whose nations are struggling to protect populations from a deadly virus. At the same time, they are attempting to avoid descending into the chaos of economic blight.

One way or another, our world will never be the same again. Our situation is stark, yet there can emerge a new generation of fresh ideas, with which to tackle the global environment and human welfare.



Planet Earth on March 20, 2020, passed through the Northern Hemisphere's Spring Equinox. Image from the NASA DSCOVR spacecraft at 02:15:15 GMT.

We send you our hopes and best wishes, while we all take steps to overcome this challenge.



The image above was published by the NASA Earth Observatory website on March 2, 2020. It was captioned "It's Airborne Nitrogen Dioxide Plummetts Over China."

The virus and beyond.

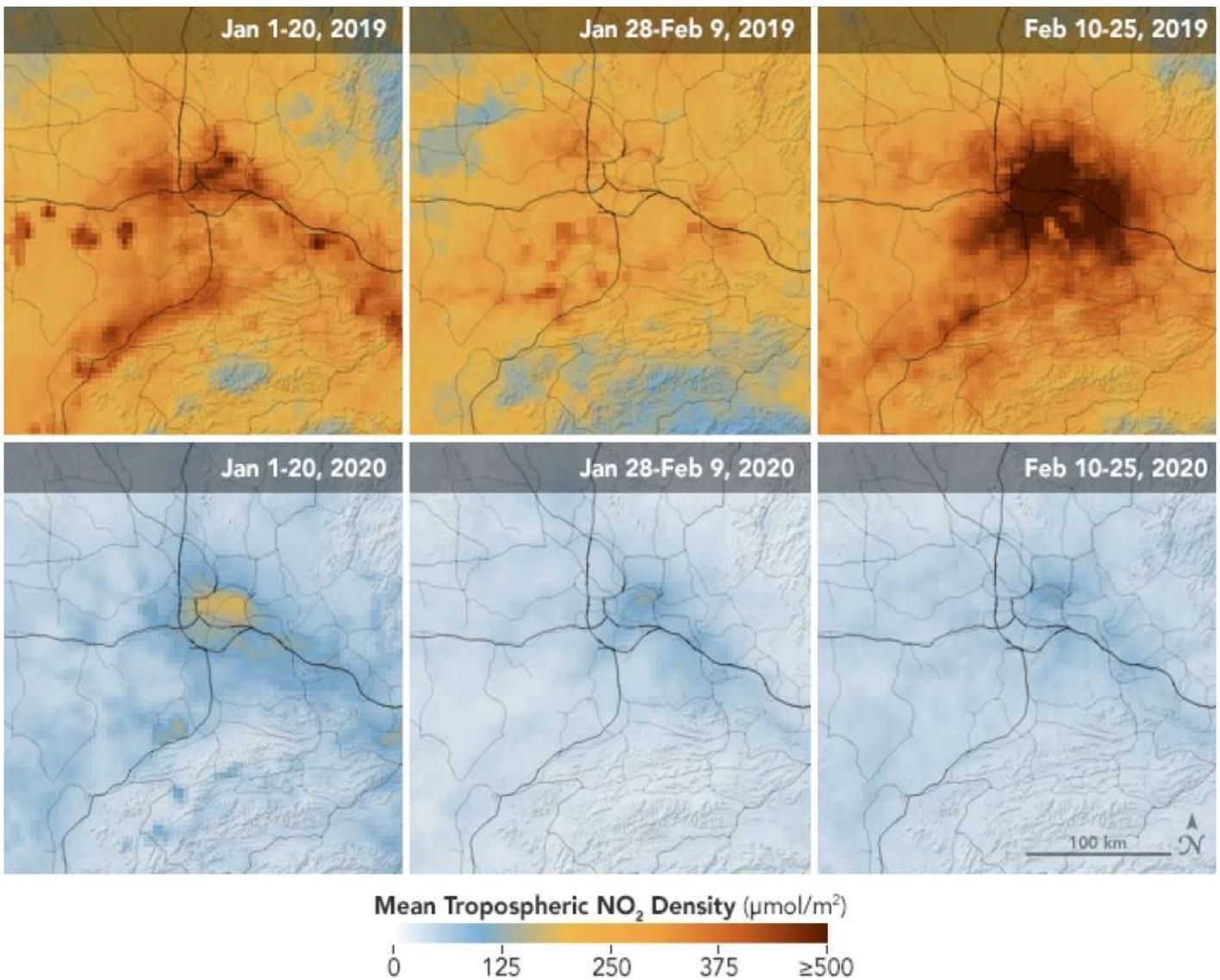
Our civilisation is faced by multiple threats. Surviving them and ensuring civilisation's longevity requires us to understand the whole picture. The welfare of 7.8 billion people requires nothing else.

The complexities of the problems that our species must overcome can be illustrated by the way in which the virus SARS-CoV-2 has hit the economy hard, upon which people's livelihoods depend, yet this has seen a decrease in pollution NO₂ (nitrogen dioxide). Observations were gathered by the TROPOMI (Tropospheric Monitoring Instrument) aboard the ESA Sentinel-5 satellite and the OMI (Ozone Monitoring Instrument) on the NASA Aura satellite.

<https://earthobservatory.nasa.gov/images/146362/airborne-nitrogen-dioxide-plummetts-over-china>

Complex threats need integrated solutions.

The pandemic threatens health, including numerous causes of death. Potential undermining of economic systems, as a result of staff being unable to work due to the necessity of avoiding social contact, could result in multiple harm to communities around the world. However, reduction of activities that produce pollution, must also reduce a direct major danger to human communities and our Planet's ecosystems - which are the life-support systems upon which our species depends. Our case is cogent; alongside existing research and campaigning bodies, there is a need to promote an integrated approach, with the welfare of both global communities and ecological as paramount, supported by ongoing advances in scientific, technology and medicine.



Above: NASA has “Pollution Drops in Wuhan - and Does not Rebound. Unlike 2019, NO₂ levels in 2020 did not rise after the Chinese New Year.”

“The analysis of public genome sequence data from SARS-CoV-2 and related viruses found no evidence that the virus was made in a laboratory or otherwise engineered.”

The pandemic COVID-19 (coronavirus disease 2019) is a previously unknown member of the coronavirus family. It is caused by the virus SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2). It first appeared in December 2019 in the city of Wuhan, Hubei, China.

A study about the origins of SARS-CoV-2 has been carried out with first author Kristian G. Andersen of the Scripps Research Institute, Tulane University, University of Sydney, University of Edinburgh and Columbia University.

The team suggested two possible ways the virus could have reached humans. If it had already evolved to its current pathogenic state in a non-human host then bats would be possible, but without documented cases of transmission directly from bats, another organism would have to have carried it from bats and then transmitted it to humans.

The other possibility is that the virus had existed in a non-pathogenic form, as, say, in the scaly anteaters (pangolins), and passed into humans, directly or through another host.

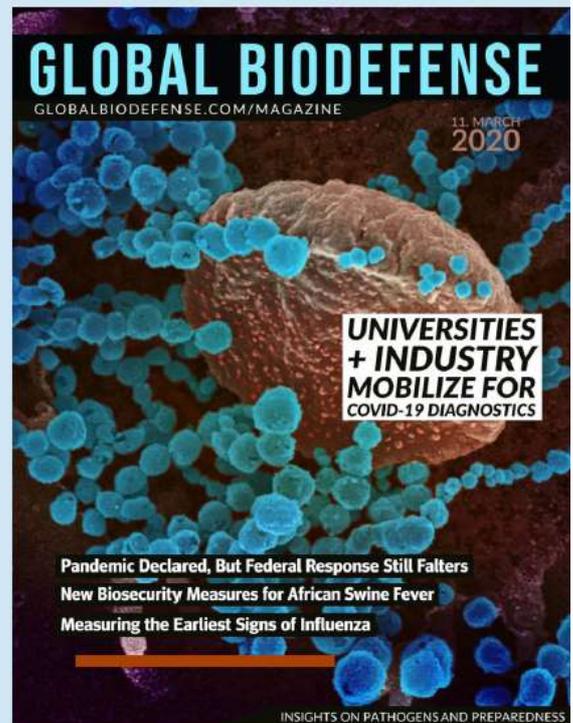
Kristian G. Andersen, Andrew Rambaut, W. Ian Lipkin, Edward C. Holmes, Robert F. Garry. The proximal origin of SARS-CoV-2. *Nature Medicine*, 2020; DOI: [10.1038/s41591-020-0820-9](https://doi.org/10.1038/s41591-020-0820-9)

Scripps Research Institute. “COVID-19 coronavirus epidemic has a natural origin.” ScienceDaily. ScienceDaily, 17 March 2020. <www.sciencedaily.com/releases/2020/03/200317175442.htm>.

Check out updates and discussion in the online journal Global Biodefense.

It has been puzzling that some countries, such as Russia, appear to have reported low numbers of COVID-19 cases. Readers may be interested in an article in Global Biodefense, written by Jeremy Rossman (Honorary Senior Lecturer in Virology and President of Research-Aid Networks, University of Kent) March 18, 2020:

“It is of particular concern that with the close relationships to China and extensive national resources, Russia has only reported 63 cases. While it is possible that this low number reflects their active border control and screening there is a concern that this reflects either a lack of screening or a lack of reporting. Combined with the recent evidence that Russia has been behind several recent COVID-19 disinformation campaigns, this raises the concern that Russia may be playing a dangerous game with global health. Hopefully this is simply a case of good border control or low rates of testing, but time will tell.”



SARS-CoV-2 may be of natural origins, but the course of its spread and consequences will be, even so, of considerable interest to experts in biological warfare. Readers may find a discussion about making bioweapons obsolete of some interest:

<https://councilonstrategicrisks.org/making-bioweapons-obsolete-a-summary-of-workshop-discussions/>
[Making Bioweapons Obsolete: A Summary of Workshop Discussions](#) (pdf)

Helpful outlines of ongoing research on the SARS-CoV-2, with discussion from researchers can be found in the online *ScienceDaily*.

A disturbing discovery - but knowing it could save lives, is the fact that SARS-CoV-2 can survive on surfaces longer than thought. Published in the *The New England Journal of Medicine*, USA researchers from the National Institutes of Health, CDC, UCLA and Princeton University showed that SARS-CoV-2 could remain as follows:

3 hours in aerosols; 4 hours on copper; 24 hours on cardboard; 2 to 3 days on plastic and stainless steel.

The BBC has emphasised that in worst case scenarios, the virus could survive for 28 days in low temperatures.

March 17, 2020 DOI: 10.1056/NEJMc2004973 Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1



A statement from UK Prime Minister Boris Johnson on the BBC March 23, 2020, 20.30 revealed unprecedented, but time-limited powers for the state to enforce social distancing. Readers will have already heard this on the internet, media or papers.

Most people have followed instructions, but many have ignored them. The potential overwhelming of the NHS remains a very real danger. Parliament will respond to the powers as the situation develops.

Commentators have debated the parallels between the swift action, or otherwise, over SARS-CoV-2, and action on dangers, but on a less immediate times-scale of climate change.



Protest is a vital function of democracy; because it is an essential way to bring issues to the media and thus to the electorate.

Remember Extinction Rebellion?

Last year, the theory was easy - at least as it appeared to many - If enough people could only gather together in places like central London, such as on major bridges, and bring the traffic to a close, the politicians will have to take notice and tackle issues like climate. There were earnest arguments about the morality of whether bridges should be closed, notably because of emergency vehicles having to take detours. There was a backlash from the public after some activists climbed on top of tube trains (whose commuters were already using public transport as opposed to cars). In reality, three quarters of Extinction Rebellion activists had not agreed with this action. The debate continued. On October 7, 2020, a huge crowd had gathered on Waterloo Bridge to demand change. Some people saw an escalating protest forcing Governments around the world to accelerate their response to human-driven climate change. Nobody would have seen the prospect of London's streets and bridges being emptied due to a virus pandemic. Our picture is something from a past world.

“the storm will pass, humankind will survive, most of us will still be alive – but we will inhabit a different world.”

The suspension of demonstrations is expected to be temporary. A darker possibility has been explored in the *Financial Times* by Yuval Noah Harari.

“closely monitoring people’s smartphones, making use of hundreds of millions of face-recognising cameras, and obliging people to check and report their body temperature and medical condition, the Chinese authorities can not only quickly identify suspected coronavirus carriers, but also track their movements and identify anyone they came into contact with.”

This same technology, emphasised Harari, could be a potential tool for dictatorship.

“Imagine North Korea in 2030, when every citizen has to wear a biometric bracelet 24 hours a day. If you listen to a speech by the Great Leader and the bracelet picks up the tell-tale signs of anger, you are done for.”

Electorates in democracies are going to have to decide what kind of world they will live in.

<https://www.msn.com/en-gb/money/news/yuval-noah-harari-the-world-after-coronavirus/ar-BB11rdUm?li=AAZ9Ug&ocid=mailsignout>

Readers may find this recent BBC discussion of interest “Is enough being done to prevent a recession?”

HARDtalk's Stephen Sackur speaks to Laurence Boone, chief economist at the global economic forum, the OECD. Leaders around the world have adopted the language of war to capture the scale of the threat posed by coronavirus. But are they deploying the right weaponry, not just to protect public health, but to prevent a worldwide economic depression? Will we get the dramatic, coordinated, emergency intervention needed to stave off economic disaster?

<https://www.bbc.co.uk/programmes/w3csy94r>

Updates are provided by the European Centre for Disease Prevention and Control (an agency of the European Union). Situation update worldwide, as of 24 March 2020. “Summary: Since 31 December 2019 and as of 24 March 2020, 378 041 cases of COVID-19 (in accordance with the applied case definitions and testing strategies in the affected countries) have been reported, including 16 365 deaths”

<https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases>

Time for action: We, the human species, must work together at this time to defeat the SARS-CoV-2 - and make no mistake, we shall defeat it.

Meanwhile, as campaigners for people and planet, we must ask tough questions from the politicians and policy makers - and others will follow.

Taking an integrated approach to transport systems:

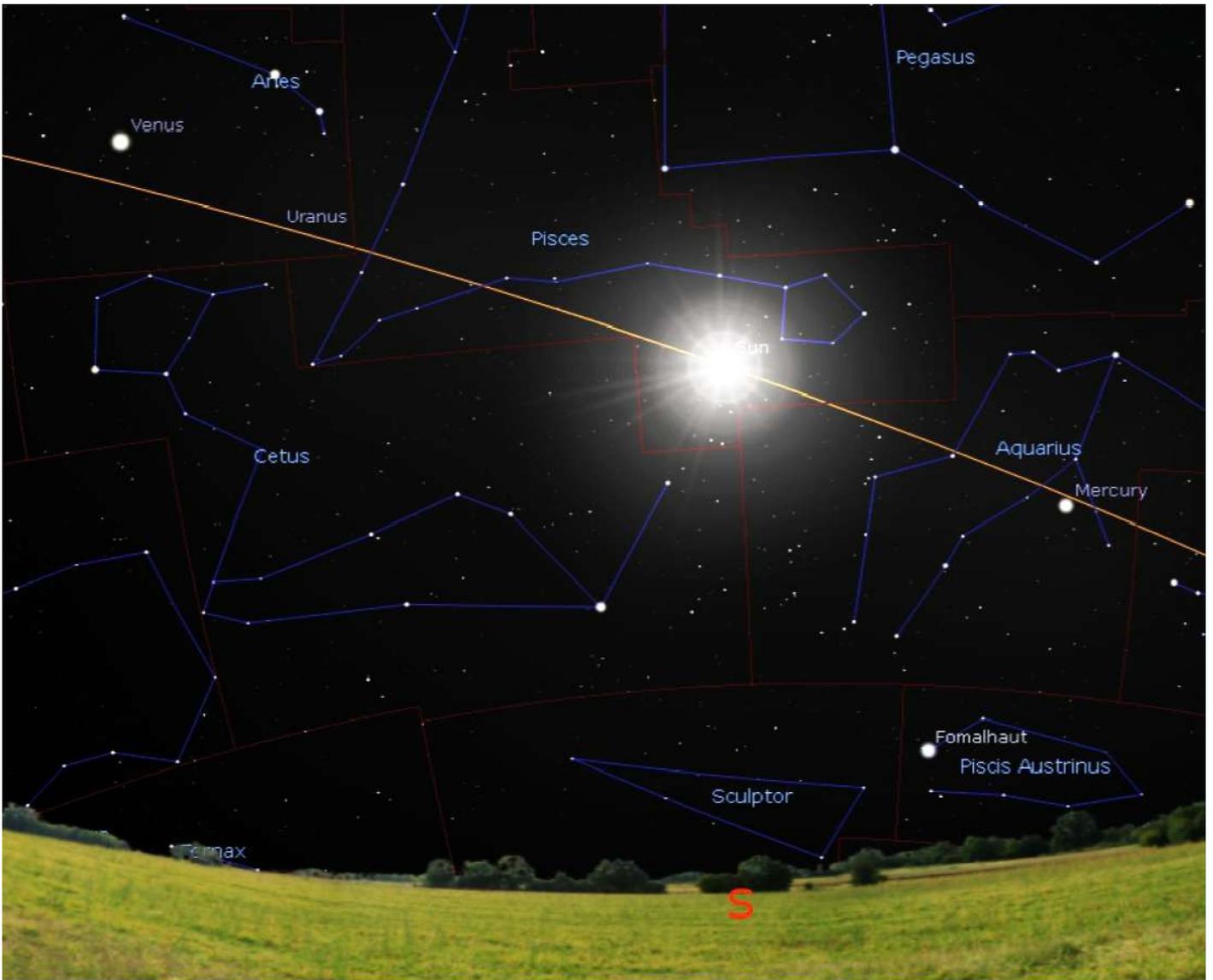
Humanity has taken control of the land, sea and atmosphere. During the last few weeks, however, due to this pandemic, many members of our species have found themselves obliged to remain indoors, for weeks or more, or if essential to go outside, must keep a minimum of 2 m from others. With many shops, businesses and international travel unable to work, societies have found themselves obliged to live off their stored monies, which cannot continue indefinitely.

The likelihood is that SARS-CoV-2 was not created deliberately as a bioweapon. However, human activity has been involved. In an era of rapid global transport systems, the virus, which attacks lungs and airways, has crossed the planet. We need to address the entire problem of how transport (with cars, boats & planes as a major global economic reality) is generating polluting, CO₂ emissions, transporting species from ecological zones to another and spreading diseases like wildfire, with a greater and more urgent determination than the world has seen so far. Advances have brought us immense benefits. We need something better than human ingenuity alone, however. We will need to be even cleverer, in how we apply that creativity. We must be looking ahead to foresee potential disadvantages and come up with their solutions. We cannot predict everything in advance, but preparation will reduce the problem. We, the electorate must insist that leaders must demonstrate how they intend to go about this.

Thousands of millions of people are being supported by a “fair weather” civilisation.

If our civilisation is to continue into a more distant future, we must create a robust infrastructure, capable of increased resilience. This would require a commitment to substantial long-term funding. Governments and electorates would have to decide whether the advantages of security and longevity outweigh the short-term political gains of minimising taxation. Where do we go from here? Politicians and planners, working with scientific and social expertise, must explore in detail a range of worst case scenarios for our Planet, our civilisation and for nations. Our task must be to ask disturbing questions that many people may not wish to think about, and in many ways, take the bull by the horns on their behalf. For example, what would happen in the case of countries which have been debilitated by SARS-CoV-2 and *then* suffers a major natural catastrophe? This is by no means unlikely. What happens if we suffer a further pandemic immediately after the present outbreak? What are the long-term strategic implications for democratic nations in the aftermath of pandemics?

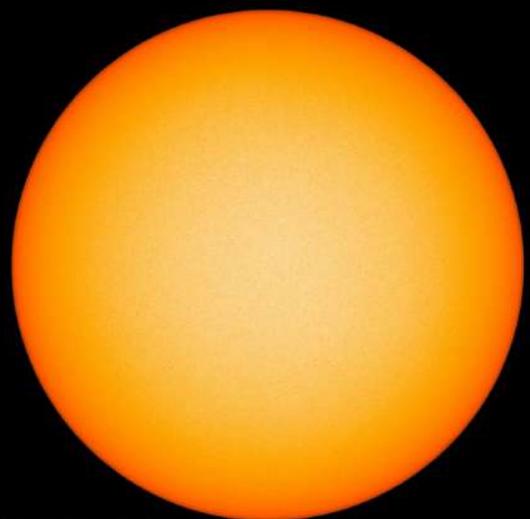
There is a huge task here for governments and for those standing up to defend both Earth and its natural life support systems and humanity.



Spring Equinox March 20, 2020.

The *Stellarium* view above shows the Sun, planets and stars at mid-day GMT, in the absence of the atmosphere.

Around noon in New Ash Green, Kent, the Sun appeared shortly through cloud. NASA's SDO (Solar Dynamics Observatory) revealed a Sun without sunspots. March 20, 2020. 20:15:00 GMT.





Above: March 20 was the Autumn Equinox for the Southern Hemisphere. While the Sun rises at the North Pole (sea ice above open water) and sinks at the South Pole. The Amundsen-Scott Station is at the South Pole lies on top of the great ice sheet, some 2.835 km above sea level. This was a rather gloom picture and also, the camera has been lowered. 02:35:02 GMT. Antarctic, by the way, is now the only continent free of the virus SARS-CoV-2!

The webcam is managed by NOAA's Earth Systems Research Laboratory, Global Monitoring Division. Check it out at <https://www.esrl.noaa.gov/gmd/obop/spo/livecamera.html>

Antarctica is descending, day by day, through twilight and into the depths of polar night. The following two pages show the process into night and return in 2019. There were some beautiful views of the aurora australis.

Prime Meridian.

PM is published by the Ecospheres Project, a research and media collaboration. PM follows global environment alongside the cycle of the seasons in South East England. It steps back to look at the Earth in its astronomical context and it pursues the search for other habitable worlds.

Editor: Dr Martin J. Heath.

Editorial assistance: Penelope Stanford & Dr Laurance R. Doyle.

Collaboration associates: Palash Dave, Lienkie Diedericks, Laura Elworthy, Elizabeth Gornall, Shaheen Komatsu and Veronica Mariquoe.

Email: Prime-meridian01@hotmail.com

Website: www.ecospheresproject.org

Prime Meridian is a not-for-profit publication. This newsletter may be copied and distributed freely by any organisation engaged in raising awareness of environmental issues or for general educational purposes.

Images in Prime Meridian are from M. J. Heath unless otherwise specified. Images in Prime Meridian are from M. J. unless otherwise specified. © M. J. Heath



April 23, 2019



April 24, 2019



May 2, 2019



May 5, 2019



May 11, 2019



May 30, 2019



June 9, 2019



June 9, 2019



July 10, 2019



July 30, 2019

