Ground truth: Catastrophic Solar Activity

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Infrastructure Categories:
Communications, Energy, Financial Services, Information Technology, Nuclear Reactors.

Threat Details:
The period of solar activity running up to the late 2025 peak has been an especially intensive and unpredictable one. Whilst long-term models remain broadly accurate, short-term predictions from National Oceanic and Atmospheric Administration (NOAA) have been worryingly inaccurate.

The current cycle of solar activity was anticipated to reach its peak some weeks ago but continues to grow in intensity and frequency. The team at NOAA, working with experts from academic institutions around the world have been scrambling to rework their models. Completed just over a week ago, the new International Consensus Solar Activity Model (ICSAM) successfully predicted a small solar flare 24 hours after completion. It then predicted a larger ejection event a few days later. The intensity of both events was calculated to within 1% of the actual strength of each flare.

The latest prediction, however, is more alarming.

ICSAM has predicted that a catastrophic solar event will occur within the current cycle. Estimates place the strength of this event at the upper end of NOAA's classification system this poses a direct threat to all electrical equipment. Additionally, the discharge will induce a large current in any electrical wiring which may be sufficient to cause overheating, serious electric shocks, and short circuiting of attached electronics.

Whilst it is not currently possible to predict when this solar flare will take place, and so it is impossible to accurately predict the areas which will be impacted. NOAA models indicate that, with the intensity expected, if the solar flare is released in the approximate direction of the earth, 100% of satellites in all orbits, will be lost instantly.

Furthermore, the only locations which won't be directly impacted at ground level will be at points furthest from the sun at the moment the flare occurs. However, these locations may suffer from secondary impacts including short circuits within national power grids caused by induced voltage or communications loss if they share these with areas which are impacted.

Unfolding Response:
The initial warns from the ICSAM models were treated with some scepticism by the political class. The implications of accepting its predictions being too much to bear.

However, when the second prediction was shown to be highly accurate, politicians began to enact plans to minimise damage. Whilst there is no way to be certain that, when the eruption which produces the flare occurs, that it will hit the Earth, the impact of inaction was too great.

Many credit a speech to the Joint Chiefs by Dr Marcus Wainwright of NOAA for swinging their view. His reminder that “when flaming passenger jets slam into the White House lawn, it will be too damn late,” proving to be especially effective.

It is currently impossible to predict exactly when the event will occur, so a rapid, decisive response is needed. The current plan has three principal areas of focus:

- Minimisation of damage
- Management of public information and response
- Safeguarding services and infrastructure necessary for recovery

The first stage will be achieved by rapidly taking offline massed-transport systems, all air traffic, nuclear reactors, sea transport which relies on GPS, and taking offline as many traditional power stations as possible.

A coordinated, controlled released of information to the public is planned globally within the next 24 hours. The plan is to use trusted, local partners and to have them present the facts but not to present this as an extinction-level threat.

Items for recovery include medication, policing, digital information, and certain specialist equipment. A full list of what is to be store is currently being compiled, whilst elements of the military are securing and deep mine facilities which they can use to store these items. There is no certainty that burying them in this way will work, but it is our only option.

Next steps including planning for what to do with medical facilities, water, water treatment and waste management facilities. It will also be necessary to consider how to re-establish communications on a local, national, and international scale once this event has occurred.

Which the flare itself will take around 8 minutes, travelling at the speed of light, to arrive at the Earth, we will have less than 20 seconds warning on the ground. This requires that leadership should be decisive and clear to give the best chance of survival for the largest number of the population.

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