

Space Weather: Impacts on Airlines

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Recent Impacts

- Impact on satellites was minimal.
- It is acknowledged that short outages may have gone unreported.
- HF issues were widespread on the day side of the earth.
- This may have more to do with one of the several R3's that were occurring at the same time as the G5
- Conclusion to this theory remains elusive as G5 events may equally cause HF blackouts





Recent Impacts

- Airlines needed to adjust original flight routes and use lower latitudes
- Airlines avoided Polar operations resulting in longer distances
- Overall higher fuel carriage
- This meant less favourable conditions for FPLs (eg: head winds) so reduced payloads.

Airline Reports

Impact	Location	Other Information
<p>HF loss & 1 CPDCL loss with Gander (DL205 ARN-JFK) The geomagnetic storm on 11/12 May affected HF on a few flights, as described below. There were no reports of GPS issues.</p> <ul style="list-style-type: none">• Loss of HF. Also stated no flights were able to contact Gander via voice. CPDLC and SATCOM were unaffected.• Loss of HF. Also reported other a/c experiencing the same problem. CPDLC and SATCOM were unaffected.• HF issues. CPDLC unaffected• Reported unable HF with Gander. CPDLC ok• Reported unable HF or CPDLC .• Reported unable HF with Gander. CPDLC ok but requested a SATCOM phone patch with Gander radio to clarify.	<p>NAT Gander</p> <ul style="list-style-type: none">• CDG-ATL 55N30W• MXP-JFK 56N30W• CDG-JFK• AMS-MSP• ARN-JFK• FRA-DTW	<p>CPDLC except 1 flt unaffected SATCOM clarification requested once and okay. No GPS loss reported.</p>

Airline Reports

Impact	Location	Other Information
HF Loss	NAT – Nth Canada limited to 82N	CPDLC/ADS-C unaffected. Sent out Radiation alert to aircraft.
<p>HF Loss</p> <p>Pacific – a few flights planned at lower FL and 20mins additional fuel.</p> <p>Latin America NY Oceanic probs with ARINC comms. Airline avoided where reported. 10-15 mins additional flight time.</p>	<p>NAT, Iceland, Gander and South Pacific (AKL Radio lower freqs working with fade out), SFO intermittent.</p>	<p>CPDLC/ADS-S unaffected.</p> <p>SATCOM a rqmt outside VHF for non Satcom aircraft.</p> <p>Impact on satellites was minimal.</p> <p>ViaSat and Panasonic saw no impact from solar storm.</p>
20 flights unable to uplink wind/NOTAM updates		
3 flts lost HF comms and entered BIRD FIR without clearance. Most lost HF on NATS but CPDLC okay. 2 flights reduced FL .	NATS and Japan-Paris	No info for GNSS. Waiting on more info from the pilot group.
HF Comms loss on the NAT. Much longer flight times to/from Asia	NAT/Asia	

Preventative Action

- Not a lot reported
- Amended routes and altitudes in FPLs
- Warnings in briefings to pilots on potential outages
- Monitoring own flights and reports from other airlines and ATC



Thank you

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