

PROTECTION OF COMMUNICATION SYSTEMS FROM SOLAR FLARES

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HOW TO PROTECT COMMUNICATION SYSTEMS FROM SOLAR STORMS

1. The development of improved model for predicting solar wind

While manufacturing electronics and digital components for satellites we can use some kind of protective shielding to deflect the radiation that comes from solar flares. Most sought materials we can use for this purpose is aluminium alloys.

Satellites with built-in protection – satellites can be design including solar panels these panels can power the transponders and they face the sun. These satellites can withstand solar storms and stationed outside the protective barrier of the earth.

2. Improvements to the flight software for autonomous protection

Programming can also be done in order to protect satellites from solar flares. A satellite is to be programmed in such a way that it would rotate or changes its orbit temporarily to defend against the flares.

For example in satellites we can use stars trackers to determine whether their location is correct. "These solar flare particles can look like a star, and they don't come one at a time. So all of a sudden, this star tracker will try to adjust its orbit" based on the electronic particles, so this can be an alternative method.

Flare can cause signal loss. So receiver can be confused leading to a loss of signal. The only solutions, suggested are to equip receivers with weak signal-tracking algorithms or to increase the signal power from the satellites.

3. Implementation of ground radiation monitoring system

- By installing proper flare detection system we can routinely receives alerts of solar radio bursts so that they can recognize communication problems and forego unnecessary maintenance.

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