

Next-Gen Polar OPIR:

Future of U.S. Strategic Missile Warning



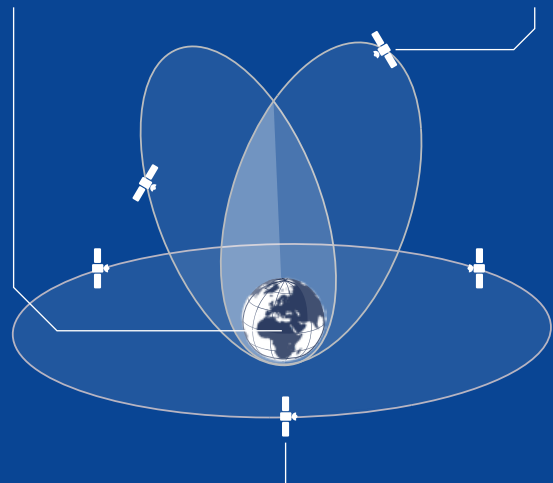
Early Global Missile Warning

- **Resilient Space Layer for Launch Detection and Missile Warning**
 - Inherent capability to augment missile defense, battlespace awareness, technical intelligence, and civil/environmental missions
- **Informs Presidential Decisions**
 - First responder for nuclear command and control
- **Satellite will operate in contested environments**



1 Survivable & Resilient Ground System
Automated, responsive, upgradeable to keep ahead of missile threats

2 Polar Satellites in Highly Elliptical Orbit
Persistent coverage of the northern hemisphere



3 Geosynchronous Earth Orbit Satellites
Persistent coverage of mid-latitude regions

Enhanced Capabilities

• Early Warning Defense

- Resilient space layer for early warning of global launches
- Rapidly cue other missile defense layers to protect U.S. homeland and forces abroad

• Pioneering resiliency features to survive contested space

• Wideband Communications for assured rapid detection of advanced missiles

• Higher-resolution threat detection

• Significantly increased collection area

• Greater sensitivity to see dimmer targets

A Layered Defense

Northrop Grumman supports the Space System Command's mission.



Aircraft use chaffs and flares to defend against threats in contested airspace.



Spacecraft maneuver and use resilient payloads and other counter measures to protect themselves in contested space.

Next-Gen OPIR must defend itself to ensure critical missile warning capabilities to the US and allies.

Resiliency in Space

Threats to Satellites: Adversaries have developed the means to disrupt, disable, and destroy U.S. targets in space.



Cyber Attacks



Electronic Warfare



Directed Energy Weapons



Orbital Threats



Kinetic Energy Weapons

Threats to Ground: Emerging threats challenge our defense.



Cyber Attacks



Electronic Warfare



Ground Site Attacks

Hypersonic glide vehicles follow a different trajectory than traditional ICBMs. Space sensors' view from above is critical.

ICBM Trajectory

Hypersonic Glide Vehicle Trajectory



The fastest routes to the U.S. are over the pole. **Polar Missile Warning coverage is critical.**