

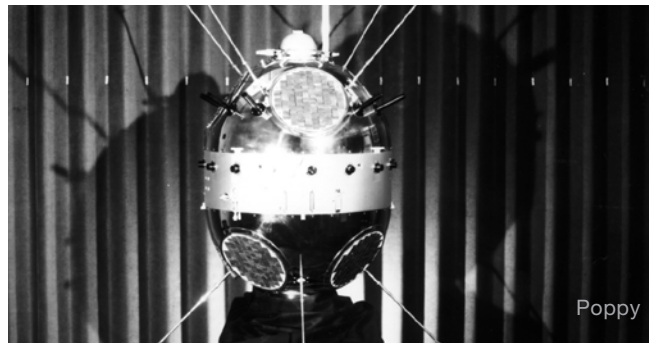
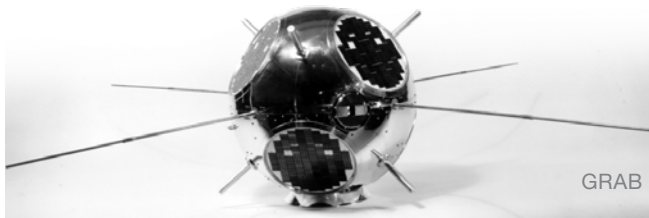
SMALL SATELLITES



of the NATIONAL RECONNAISSANCE OFFICE

Our History Using Smallsats

NRO's use of small satellites has evolved from early ELINT missions to modern-day exploration and experimentation.



1960: GRAB (1960-62) and Poppy (1962-71) were the earliest U.S. satellite-based ELINT programs.

GRAB (40 pounds) and Poppy (multiple designs, 55-282 pounds) are considered smallsats because of their size (less than 400 pounds).

2017: NRO launched a number of cubesats (2-12 pounds; low-cost nano-satellites) as part of a NASA International Space Station resupply mission. These cubesat payloads were designed to deliver weather observation capabilities to support a variety of mission requirements.

2019: NRO launched two IMPACT smallsats as rideshares. IMPACTs are cubesats that provide a lower risk, higher return on investment launch series for the early evaluation of technology in space.

NRO Smallsats Today

NRO's Office of Space Launch (OSL) leverages commercial best practices to provide responsive launch opportunities for smallsats.

The Rapid Acquisition of a Small Rocket (RASR) contract was competitively awarded to acquire smallsat launch services for the Intelligence Community, and enables NRO to explore new smallsat launch opportunities through a streamlined, commercial approach.

The first four RASR launches: NROL-151, RASR-2, NROL-162, and NROL-199 flew from New Zealand, and the fifth and final RASR launch is scheduled for 2023.



current onboarded launch vehicles on SLIC

The **Streamlined Launch IDIQ Contract (SLIC)**, awarded in March 2021, is a 10-year Indefinite Delivery/Indefinite Quantity (IDIQ) contract for leveraging commercial processes and growing competition among emerging launch service providers. SLIC:

- ◆ Is open to U.S. providers with at least one successful orbital launch
- ◆ Allows providers to bid dedicated, rideshare, or multi-manifest launch services, which maximizes competition and provides the best value to the NRO

Future of NRO Smallsats

Research & Development

NRO leverages traditional and non-traditional acquisition methods to explore and advance future technologies. NRO has been using the smallsat form factor as a primary platform for research and development (R&D) as they are often cheaper and faster to develop than large, exquisite systems.



NRO's IMPACT program matures multiple novel technologies per launch through experiment and technology miniaturization. It serves as the front end of NRO's technology pipeline by researching future mission capabilities.

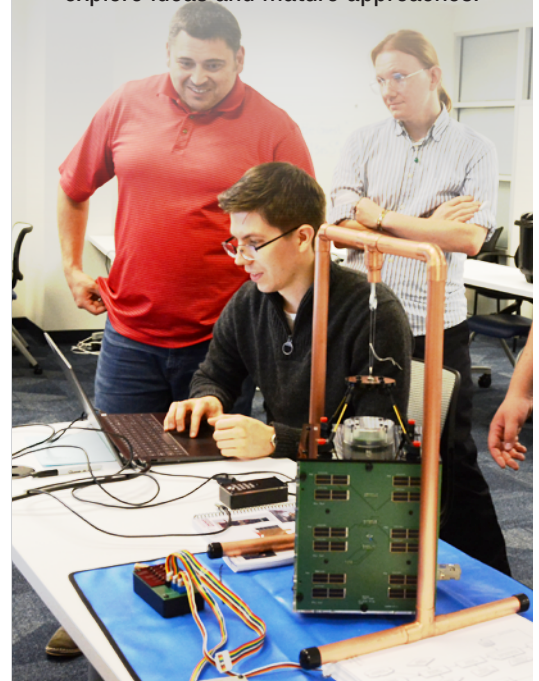
There are four IMPACT cubesats currently on orbit, with two more scheduled to launch in 2023. Each IMPACT typically carries 12 or more experiments.

NRO AS&T Research Open Laboratory Environment (ASTROLABE) offers simulations and classes focused on smallsat research. Partnerships across government, industry, and academia explore ideas and mature approaches.

Smallsat Partnerships & Future Frameworks

Smallsats have become increasingly valuable for international partnership and cooperation.

The **Square Dance Asterias program** leverages multiple international partner smallsat programs as platforms to explore policy and governance of future federated architectures and reduce risk for future combined R&D efforts, to include concepts surrounding a collaborative federated command and control network for smallsats.



Learn more about us and see our launches at [NRO.gov](https://www.nro.gov)

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