

## The Axiom-4 Ignis Mission and Poland in Space



*Sławosz Uznański-Wiśniewski is heading to the ISS in a Space-X Dragon spacecraft [1]*



*Columbus control Center Col-CC at DLR Oberpfaffenhofen (Bavaria)*

ESA project astronaut Sławosz Uznański-Wiśniewski is heading to the International Space Station (ISS) on his first mission as part of Axiom Mission 4 (Ax-4). He is the second ESA project astronaut from a new generation of Europeans to fly on a commercial human spaceflight mission with *Axiom Space* using a "newborn" Space X Dragon spacecraft launched with a Falcon 9 from Launch Complex 39A (LC-39A) at NASA's Kennedy Space Center in Florida, lifting off at 2:31 a.m. EDT (0631 GMT) on June 25 2025.

Sponsored by the Polish government and supported by ESA, the Polish Ministry of Economic Development and Technology (MRiT), and the Polish Space Agency (POLSA), the mission—called ***Ignis***, meaning 'fire' in Latin — features an ambitious technological and scientific program. It includes several experiments proposed by the Polish space industry and developed in cooperation with ESA, along with additional ESA-led experiments.

Astronaut support and payload coordination will be performed by ESA's ISS Columbus Control Center (Col-CC) at DLR Oberpfaffenhofen, and after Sławosz's successful journey to the ISS and completion of the Ignis mission a new mission patch will proudly be hung on the walls of the Col-CC.

This second human space mission of Poland gives reason to explore the ambitions of the Polish space program. [1]

### Polish Space Program Overview [2]

Poland has an active and growing presence in space activities, though it's not typically seen as a major space power. Here's an overview of the Polish space program:

#### 1. Polish Space Agency (POLSA)

- Established: 2014
- Purpose: To coordinate Poland's space activities, promote the use of satellite technologies, and represent Poland in international space organizations.
- Headquarters: Gdańsk, with branches in Warsaw and Rzeszów.
- Role: Works on national strategy, coordinates space R&D, and represents Poland in the European Space Agency (ESA) and other bodies.

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#### 2. ESA Membership

- Full Member Since: 2012
- Poland's ESA membership significantly boosted its space sector by enabling access to ESA programs and funding.
- Many Polish companies and research institutions now contribute to ESA missions (e.g., Earth observation, planetary science).

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### 3. Notable Contributions and Missions

- Instruments on International Missions:
  - Polish hardware and software have been part of missions such as:
    - **Rosetta (ESA)** – Poland contributed elements for the lander (Philae).
    - **InSight (NASA)** – The "HP<sup>3</sup>" heat flow probe, also known as the "Mole," was developed with major input from Polish company Astronika.
    - **Solar Orbiter (ESA)** – Polish institutes helped develop parts of the instruments.
- **BRITE Satellites:** Poland launched its own small satellites as part of the **BRITE** (BRight Target Explorer) constellation, in collaboration with Austria and Canada, to study stellar brightness.
- **EagleEye (2025–2026)**
  - POLSA's flagship Earth observation satellite project.
  - Built by Creotech Instruments with Polish industrial and academic partners.
  - Purpose: Support agriculture, forestry, crisis management, and national defense.
- **JUICE (ESA, launched 2023)**
  - Jupiter Icy Moons Explorer.
  - Poland contributed components for the **Radio and Plasma Wave Investigation (RPWI)** and **magnetometer booms**.
- **PROBA-3 (ESA)**
  - Poland contributed to mission planning tools and satellite formation flying mechanisms.
  - Scheduled to demonstrate autonomous satellite formation flying for space telescopes.
- **STORK Constellation (ongoing)**
  - Series of CubeSats launched by SatRevolution.
  - Designed for commercial Earth observation with global coverage.

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### 4. Industry and Research

- Key players:
  - **Astronika**
  - **PIAP Space**
  - **Creotech Instruments**
  - **Polish Academy of Sciences (PAS) institutes**
- Poland's space industry specializes in:
  - Mechanisms for satellites and landers
  - Optics and detectors
  - Robotics and automation
  - Ground segment services

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## 5. Education and Public Engagement

- Strong academic support from universities such as:
    - Warsaw University of Technology
    - AGH University of Science and Technology (Kraków)
  - Growing interest in space science education and student satellite projects (e.g., student-built CubeSats).
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## 6. Future Plans and Ambitions

- Increased participation in EU and ESA missions.
  - Building a Polish satellite navigation augmentation system compatible with Galileo and GPS.
  - Supporting space weather monitoring and satellite-based climate data services.
  - Long-term goal: increasing strategic independence in space data and infrastructure.
  - Expanding domestic satellite capabilities (e.g., Earth observation for agriculture and defense).
  - Building infrastructure for satellite data reception and analysis.
  - Supporting innovation through the **Polish Space Sector Strategy 2017–2030**.
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## 7. Poles in Space

- **Mirosław Hermaszewski** was the **first and only Polish cosmonaut** (as of 2025).
    - **Flight:** Soyuz 30, 1978, part of the Soviet Intercosmos program.
    - He became a national hero and symbol of Poland's early space aspirations.
  - **Sławosz Uznański-Wiśniewski** is heading to the International Space Station (ISS) on his first mission as part of Axiom Mission 4 (Ax-4) on the Ignis mission.
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## References

[1] Text and Video:

[https://www.esa.int/ESA\\_Multimedia/Videos/2025/06/Ignis\\_mission\\_Ready\\_for\\_Lift-Off](https://www.esa.int/ESA_Multimedia/Videos/2025/06/Ignis_mission_Ready_for_Lift-Off)

[2] Polish Space Program Overview: chatGPT based on 21 verified internet references.