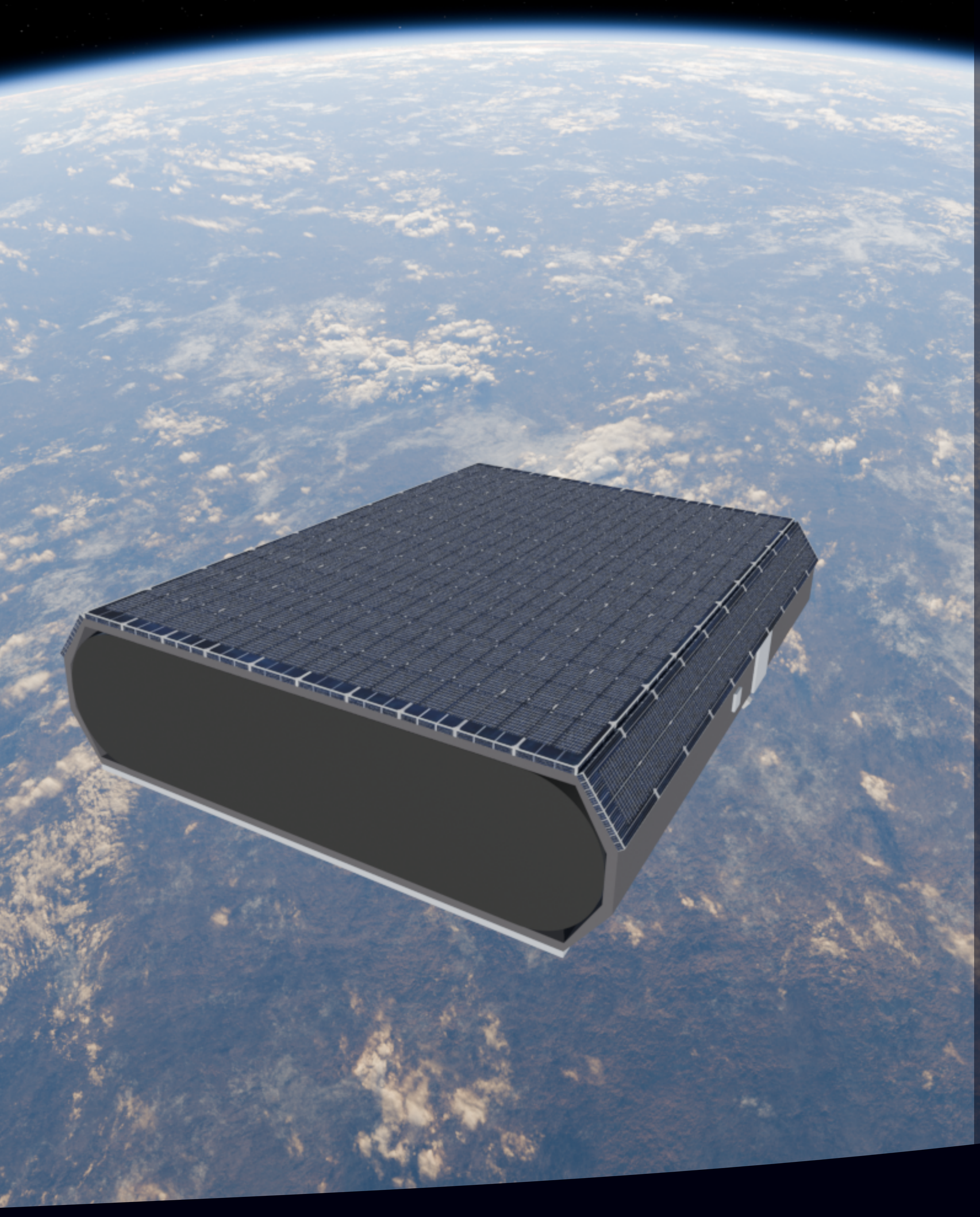
AQUILA

Satellite Design Workshop 2026
Team Blue

AQUILA is a technology demonstrator. Aquila demonstrates at least 12 months of operation in a 180 × 400 km VLEO orbit using novel air-breathing electric propulsion (ABEP), to show that long-term VLEO operation is feasible and to open VLEO as an alternative to LEO for intelligence and defense. A quantum key distribution (QKD) payload showcases one possible application that benefits from VLEO.



Primary objective:

- **Stay at VLEO with ABEP for 12 months**

Secondary objectives:

- **Demonstrate Quantum Key Distribution**
- **Enable precise orbit determination via satellite laser ranging**

Features:

- **Dual patch design**
- **Ultra efficient solar cells**
- **Passive thermal control**
- **Three axis control**
- **Lightweight - 65 kg**
- **Payload: quantum communication sys.**
- **ABEP propulsion sys.**
- **Less than $250M**

The Satellite Design Workshop is hosted by the Collaborative Research Centre 1667 "Advancing Technologies of Very Low Altitude Satellites" (ATLAS) at the University of Stuttgart, which is funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – Project-ID 516238647 – SFB 1667