

MERCATOR 1

HALE-UAV PLATFORM FOR REMOTE SENSING APPLICATIONS

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ABSTRACT:

Mercator 1 is a system for remote sensing applications based on a small High Altitude Long Endurance Unmanned Aerial Vehicle (HALE-UAV), procured by VITO (the Flemish Institute for Technological Research) in the frame of its Pegasus programme. The Pegasus programme is a concept for providing remote sensing services and products to the benefit of governmental organizations, industry, commercial enterprise, the environment and the individual across the world (see also www.pegasus4europe.com). Mercator 1 will provide high-resolution imagery in the visible spectrum.

The Mercator 1 system is build by a Verhaert Space led consortium with as subcontractor UK based QinetiQ for the design of the aircraft element. The aircraft is based on their Zephyr aircraft heritage. The ground segment is build by Verhaert Space and the payload will be developed by VITO.

Throughout the world, a lot of developments are currently on-going related to (HALE)-UAVs; such as massive zeppelin systems, heavy-weight solar wings and fast-flying military systems, which all have the drawback to be inherently threatening above densely populated areas such as Europe, due to their energy content (speed, mass, volume or a combination).

The Mercator 1 project is a unique innovative approach suited for operating much more safely; it combines very low mass with very low speed and distributed mass to an aircraft even less risky to fly then remotely controlled model aircraft.

Mercator 1 characteristics

- Overall Air Up Mass: 32 kg
- Wingspan: 18 m
- Airspeed: 5 m/s at ground level
- Distributed mass concept: aircraft elements distributed over the fuselage and wing
- Specific wing profile resulting in a inherently stable and safe aircraft
- Solar electric system (solar cells + battery power for overnight operation)
- Balloon and Ground launch possibility