

## INTERESTING ENVRI-PRIVATE INDUSTRY COOPERATION EXAMPLE COMING FROM ARCTIC

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As part of its **Work Package 8: Drone Technology**, infrastructure project **INTERACT** (*International Network for Terrestrial Research and Monitoring in the Arctic*) is aiming to increase awareness of drone technology and sensors among researchers and research station managers while making industry aware of innovative potential uses requiring drone and sensor development. Ultimately, this cooperation between representatives from science and relevant manufacturers of instruments should lead to new technology set in production.

The specific aims are to increase knowledge on drone technology and current legislation for use of drones among station managers, identify UAV-sensors specifically for Arctic research or currently underrepresented in the Arctic and produce a best practice scheme for use of drones at Arctic research stations. UAV-sensors are especially applicable for Arctic research as Arctic consists of vast areas with very limited infrastructure and often inaccessible places, which makes it difficult to gather spatial environmental information at regular intervals and with minimal environmental impact on the ground.



With drones it is possible to make such investigations, and due to the very limited population density in most of the Arctic, UAV operations can be carried out with less risk than is the case in areas more densely populated. At the same time, they can increase safety in the field by avoiding walking over mountains, ice, snow and wetlands. In the near future it is probable that

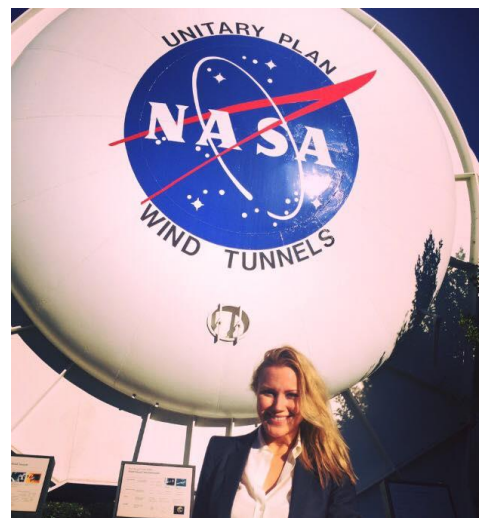
drones will be considered as part of the equipment operated routinely by research station staff and visiting scientists. However, knowledge about drone technology is still very limited within the Arctic science community and among Arctic research stations, and sensors need to be developed specifically for Arctic purposes and environmental research. At the same time, industry would benefit from learning about innovative needs for UAV and sensor development from the research and monitoring community.

Three main WP8 tasks will be: T8.1 - Increasing awareness of drone technology, T8.2 - Drone

technologies to be used in Arctic terrestrial settings and producing best practices and T8.3 - Standards for use of drones at INTERACT research stations.

The INTERACT WP8 will be implemented by two Swedish companies: engineering consultant company **ÅF** and aerospace company **UMBILICAL DESIGN** that has specialised in transferring space technology to different industries. Task 8.1 is led by the Space Innovation Manager Annelie Sule from Umbilical Design, one of 15 European companies that the European Space Agency (ESA) has designated as a Technology Transfer Broker. Umbilical Design also has ongoing collaborations with NASA. Task 8.2 and 8.3 is led by Project Manager Tomas Gustafsson from ÅF, one of the leading engineering consultant companies in Europe.

In Task 8.1, representatives from the industry and the research communities working with the development of drone technology will be invited to help to increase knowledge on drone technology and current legislation for use of drones among INTERACT station managers and Transnational Access user groups. The task will include a workshop together with station managers and industry at a Station Managers' Forum (SMF) and a side meeting of the Transnational Access community workshop. These meetings will increase awareness of drone technology and potential applications while inviting representatives from the Transnational Access community and station managers to identify particular needs.



In Task 8.2 different drone and sensor technologies will be investigated in cooperation between Arctic researchers and station managers and relevant drone and sensor companies including the satellite industry. The major goal will be to make drones easily applicable for different types of remote sensing and for upscaling of scientific observations from plot scale to regional scale across and within a range of environmental disciplines including glaciology, permafrost dynamics, hydrology, ecosystem change, and biogeochemical and bio-geophysical processes. In addition, the drones will be made easily applicable across the domains of terrestrial, marine and atmospheric.

In Task 8.3 a report and presentation will be produced for station managers and the Transnational Access user community on best practices and standards for use of drone technology at Arctic research stations. The report and presentation will be developed in cooperation between industry, researchers and station managers. Best practices will include specification of types of drones for different purposes, specification of best sensor types for different purposes, and safety issues in relation to the use of drones. Also, one section will outline possible future development needs perceived by potential users.

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