



WP 8 – Drones in Arctic Environments

Tomas Gustafsson - ÅF

Eskil Bendz - ÅF

Tor Ericsson – ÅF

Six master thesis students (Three ÅF employees)

Cecilia Hertz - Umbilical Design

Annelie Sule - Umbilical Design

Aim of the WP 8

- Increase knowledge on drone technology and current legislation, for the use of drones among station managers and scientists
- Identify UAV sensors specifically for arctic research or currently underrepresented in the Arctic
- Making industry aware of innovative potential users requiring drone and sensor development
- Produce a best practice scheme for use of drones at arctic research stations



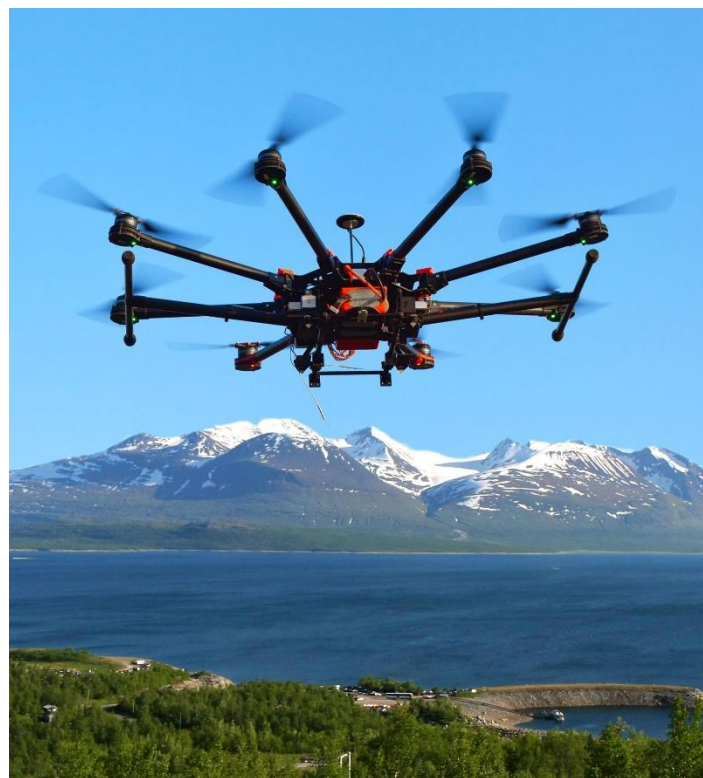
Partners involved in the WP

- INTERACT community – users, scientists and station managers
- Industry partners such as manufacturer of drones and sensor technologies
- Organizations related to drone business
- Other stakeholders on the market e.g. authorities
- Universities and schools



Achievements so far

- Collected information from several different companies providing different drone technology and sensors to be carried by drones
- Collected information from several scientists at various INTERACT stations and their typical applications where drones could be used
- All these information has contributed into the deliverables



Achievements so far

- Field study in Tarfala Research Station.
Established relation with University of Stockholm.
- Established partnerships with drone companies for future research and development



Achievements so far

- Arranged several external and internal drone seminars
- Participated in seminars and workshops as speakers
- Drone webinar for Interact members



Achievements so far

- INTERACT drone workshop Svalbard
- Overview of drone technology
- Legislation report
- Drone pocket guide
- Demonstration and exhibition



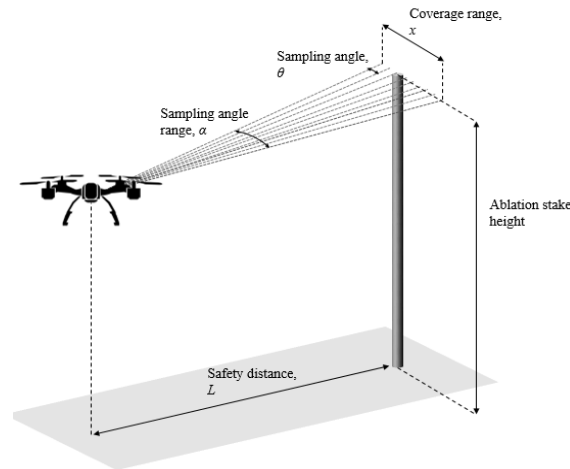
Achievements so far

- Excellent media response, nationally and internationally
- Major social media outreach
- Extensive collaboration with KTH Royal Institute of Technology – six master thesis students contributed



Achievements so far

- Automatic water sampler for aerial drones
- Snow Change Tracking Aid with a drone
- Typical examples of how development project can be combined with drone technology



Achievements so far

D8.1: SMF Drone Workshop Report (*Month 12*)

D8.2: Report on drone legislation (*Month 12*)

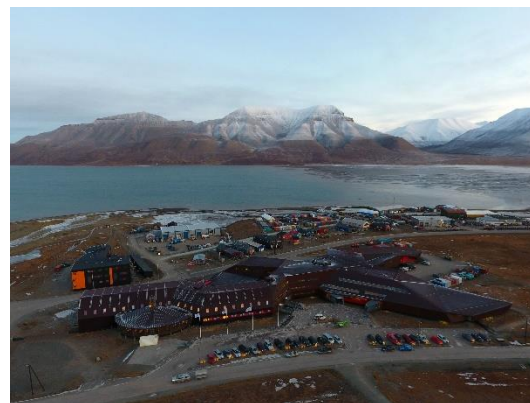
D8.3: Report requirement specifications for drones in arctic environments, including drone types, drone projects and sensor technology (~~Month 18~~) Month 23

D8.4: Report on recommendations for new sensor development (~~Month 18~~) Month 23

D8.5: Guidelines for drone usage in arctic environment (~~Month 18~~) Month 23

D8.6: TA Drone Workshop Report (~~Month 19~~) Month 23

~~March 2018: September 2018: Project end~~



Report after the Svalbard meeting. Summarized the drone workshop. Included presentations.

Workshop included "Drones Pocket Guide".

Achievements so far

D8.1: SMF Drone Workshop Report (*Month 12*)

D8.2: Report on drone legislation (*Month 12*)

D8.3: Report requirement specifications for drones in arctic environments, including drone types, drone projects and sensor technology (~~Month 18~~) Month 23

D8.4: Report on recommendations for new sensor development (~~Month 18~~) Month 23

D8.5: Guidelines for drone usage in arctic environment (~~Month 18~~) Month 23

D8.6: TA Drone Workshop Report (~~Month 19~~) Month 23

~~March 2018–September 2018: Project end~~

Legislation report. Completed prior to the Svalbard meeting October 2017. Summarize regulations for all applicable countries of INTERACT.

Legislation is examined and fact checked.

Interact homepage → Using drones.

Project No. 730938
D8.2 – Drone legislation guide



Integrating Activities for Advanced Communities



D8.2 - Drone legislation guide

Project No. 730938 – INTERACT

H2020-INFRAIA-2016-2017/H2020-INFRAIA-2016-1

Start date of project: 2016/10/01
Due date of deliverable: 2017/09/30 (M12)

Duration: 48 months
Actual Submission date: 2017/11/21

Lead partner for deliverable: Af, Tomas Gustafsson, tomas.gustafsson@afconsult.com, +46 72 218 11 14, www.afconsult.com
Author: David Axelsson and Maria Ader.

Dissemination Level

| | | |
|----|---|---|
| PU | Public | X |
| PP | Restricted to other programme participants (including the Commission Services) | |
| RE | Restricted to a group specified by the Consortium (including the Commission Services) | |
| CO | Confidential, only for members of the Consortium (including the Commission Services) | |

Document ID: INTERACT_Deliverable_8_2_v1.0.doc
Date: 2017/11/20

Public

© INTERACT consortium
Page 1 of 42



Achievements so far

D8.1: SMF Drone Workshop Report (*Month 12*)

D8.2: Report on drone legislation (*Month 12*)

D8.3: Report requirement specifications for drones in arctic environments, including drone types, drone projects and sensor technology (~~Month 18~~) Month 23

D8.4: Report on recommendations for new sensor development (~~Month 18~~) Month 23

D8.5: Guidelines for drone usage in arctic environment (~~Month 18~~) Month 23

D8.6: TA Drone Workshop Report (~~Month 19~~) Month 23

~~March 2018: September 2018: Project end~~



Large report. Gives a detailed description of the drone technology. Typical examples of projects, hardware and applications.

Achievements so far

D8.1: SMF Drone Workshop Report (*Month 12*)

D8.2: Report on drone legislation (*Month 12*)

D8.3: Report requirement specifications for drones in arctic environments, including drone types, drone projects and sensor technology (~~Month 18~~) Month 23

D8.4: Report on recommendations for new sensor development (~~Month 18~~) Month 23

D8.5: Guidelines for drone usage in arctic environment (~~Month 18~~) Month 23

D8.6: TA Drone Workshop Report (~~Month 19~~) Month 23

~~March 2018: September 2018: Project end~~



Conclusions and suggestions for new sensor development.
Includes ongoing and future sensor projects where drones can be used.

Achievements so far

D8.1: SMF Drone Workshop Report (*Month 12*)

D8.2: Report on drone legislation (*Month 12*)

D8.3: Report requirement specifications for drones in arctic environments, including drone types, drone projects and sensor technology (~~Month 18~~) Month 23

D8.4: Report on recommendations for new sensor development (~~Month 18~~) Month 23

D8.5: Guidelines for drone usage in arctic environment (~~Month 18~~) Month 23

D8.6: TA Drone Workshop Report (~~Month 19~~) Month 23

~~March 2018: September 2018: Project end~~



Guidelines for pilots, Arctic context. First document to start with before operating a drone. Popular scientific approach.



Achievements so far

D8.1: SMF Drone Workshop Report (*Month 12*)

D8.2: Report on drone legislation (*Month 12*)

D8.3: Report requirement specifications for drones in arctic environments, including drone types, drone projects and sensor technology (~~Month 18~~) Month 23

D8.4: Report on recommendations for new sensor development (~~Month 18~~) Month 23

D8.5: Guidelines for drone usage in arctic environment (~~Month 18~~) Month 23

D8.6: TA Drone Workshop Report (~~Month 19~~) Month 23

~~March 2018~~–September 2018: Formal project end

WP8 and WP5 webinar in January 2018. 50 participants from 11 countries. Based on Svalbard workshop.



Added value

- **Two projects funded by Sweden's innovation agency - Vinnova**
 - Snow4All
 - Avalanche rescue with drone
- **Navigation issues in Arctic regions – apply for financing from ESA**
 - Interact led us on this track.
- **Commercial Drone Operator program**
 - Swedish National Agency for Higher Vocational Education, University of Lund, ÅF
 - *Unique opportunity for **you** to use their knowledge during their work placement*



Deviations from workplan

- Postponed four deliverables
- Allowed to include two master thesis work
- No major impacts for the end users

D8.1: SMF Drone Workshop Report (*Month 12*)

D8.2: Report on drone legislation (*Month 12*)

D8.3: Report requirement specifications for drones in arctic environments, including drone types, drone projects and sensor technology (~~Month 18~~) Month 23

D8.4: Report on recommendations for new sensor development (~~Month 18~~) Month 23

D8.5: Guidelines for drone usage in arctic environment (~~Month 18~~) Month 23

D8.6: TA Drone Workshop Report (~~Month 19~~) Month 23

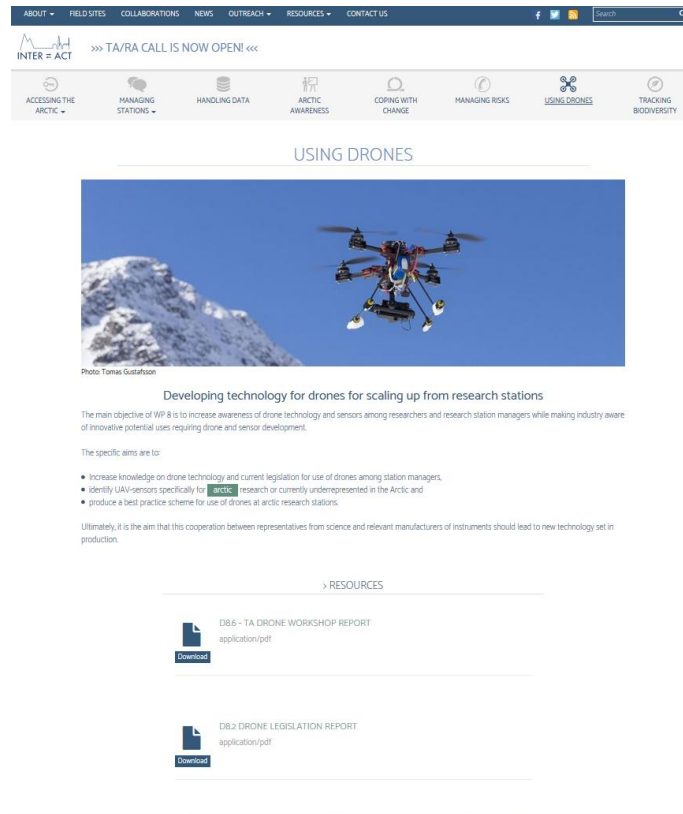
~~March 2018~~: September 2018: Project end



Expected impacts

- Lower barrier to adopt drone systems
- Improved research results for scientists
- Future development of robust drone systems
- ÅF will still be a strong future partner
- Follow the Interact from aside – potential contribution to Interact from other projects
- Outreach to other partners and projects (conferences, media, workshops, etc)

Thanks for your attention



<https://eu-interact.org/using-drones/>