

Kortlægning af isflydning og overflade på Grønlands Indlandsis med drone

- Kortlægning på tværs af en isstrøm med fixed wing UAV -

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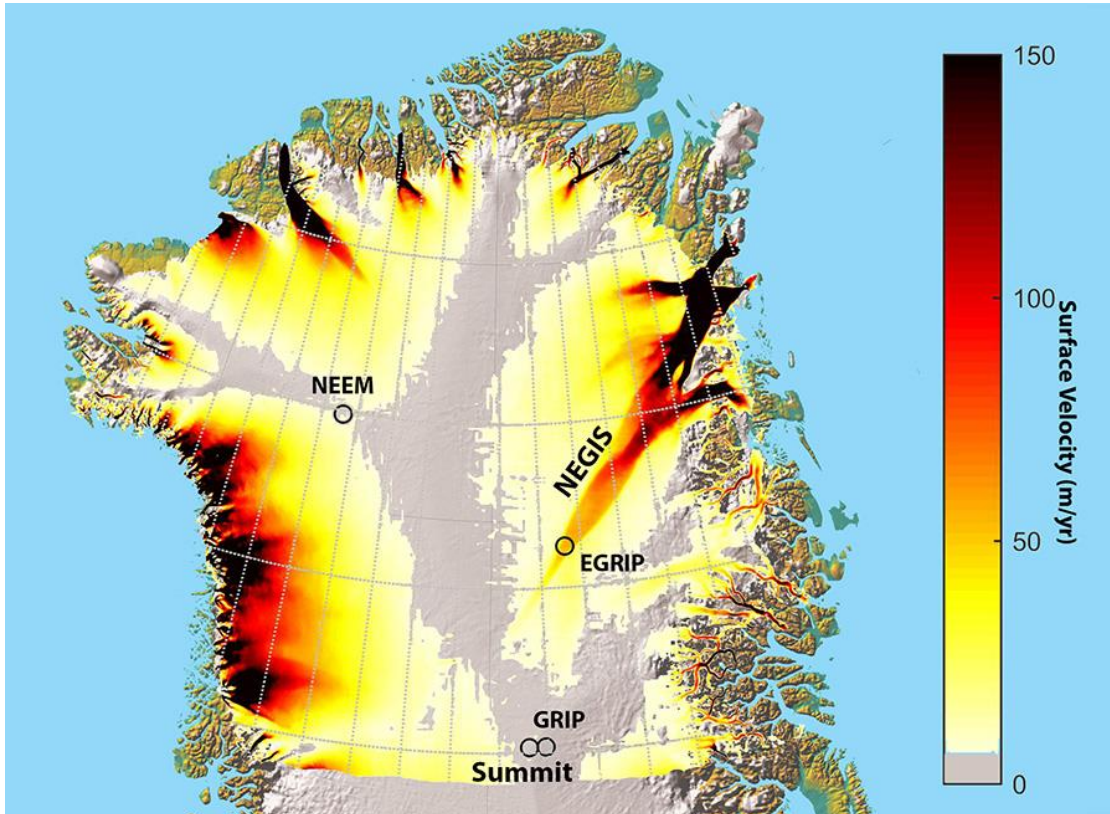
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KØBENHAVNS
UNIVERSITET



EastGRIP – en iskerneboring i Nordøstgrønland (NEGIS)



EastGRIP: Boring af 2700m iskerne.

- Udforske North-East Greenland Ice Stream
- Fortidens klima

Droner giver nye muligheder

- Kortlægge overflade og isflydning
- Udforske flydning i en isstrøm
 - Strømningsforhold (stick-slip flow)
 - Afgrænsningen (shear margins)
- Undersøge sne og overflade processer
- Validering af satellitobservationer

EGRIP lejren 2016



EGRIP (75°38'N, 35°60'W), 2700 masl

Drone mapping at EastGRIP

Map across entire ice stream with fixed wing drone

Output:

Orthophotos + DEM in very high resolution

Repeat mapping to obtain:

- Elevation change maps
- Velocity maps using feature tracking



Drone mapping at EastGRIP

Danish produced drone*:

Cumulus One (Skywatch)

Our surveys:

80 km per flight

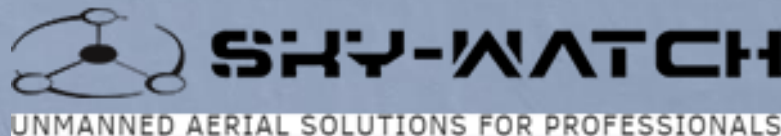
500 m altitude

15 km² mapped per flight

2.3 kg w. payload (Sony QX1)

Airspeed 15 m/s

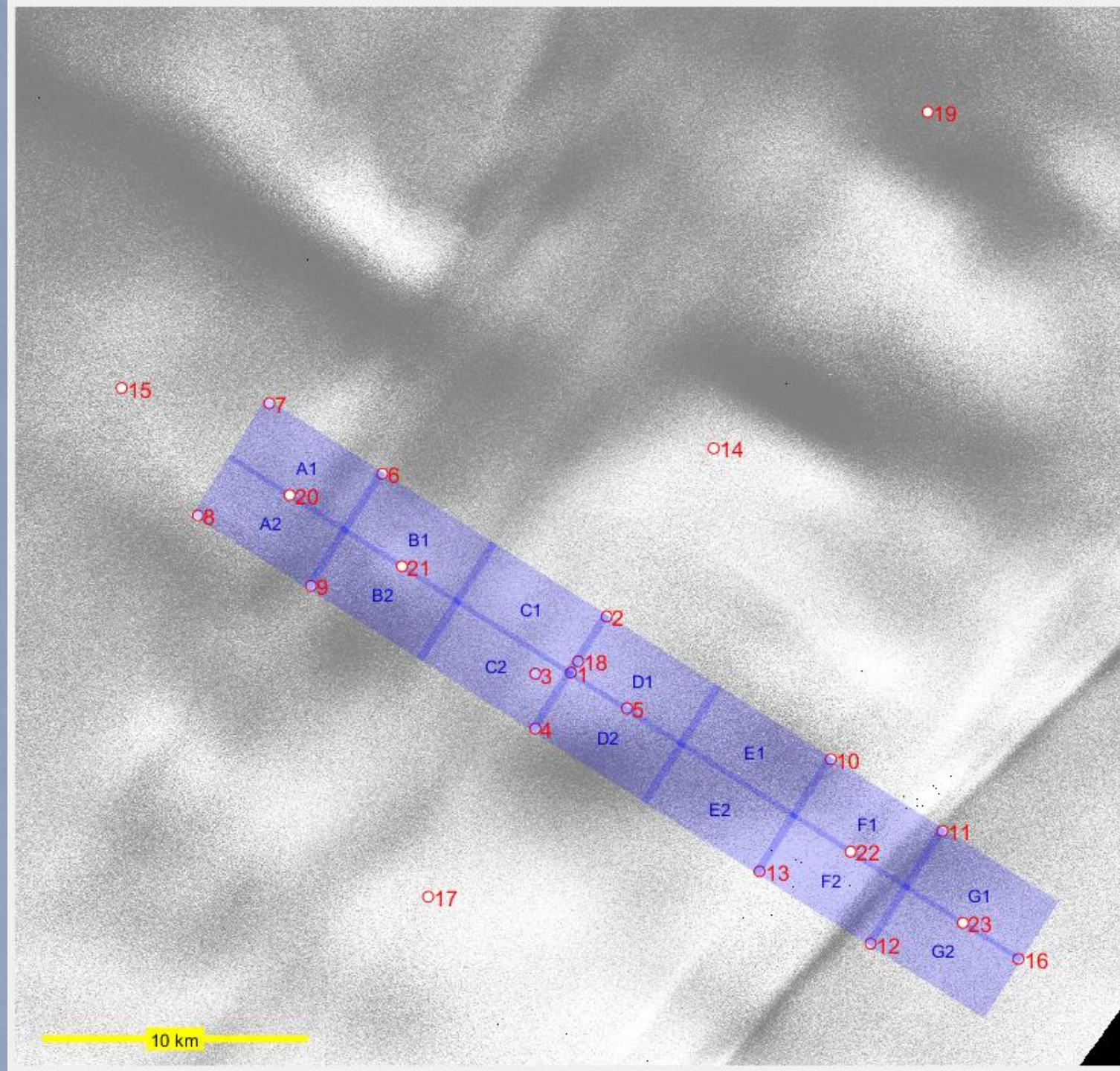
*Funding fra
Energistyrelsen (Dancea)





Mission planning

- 14 x 15 km² polys
- Mission polygons with 200m overlap
- GPS stakes for ground control
- 2 missions/day in 2016, but 4 is feasible.

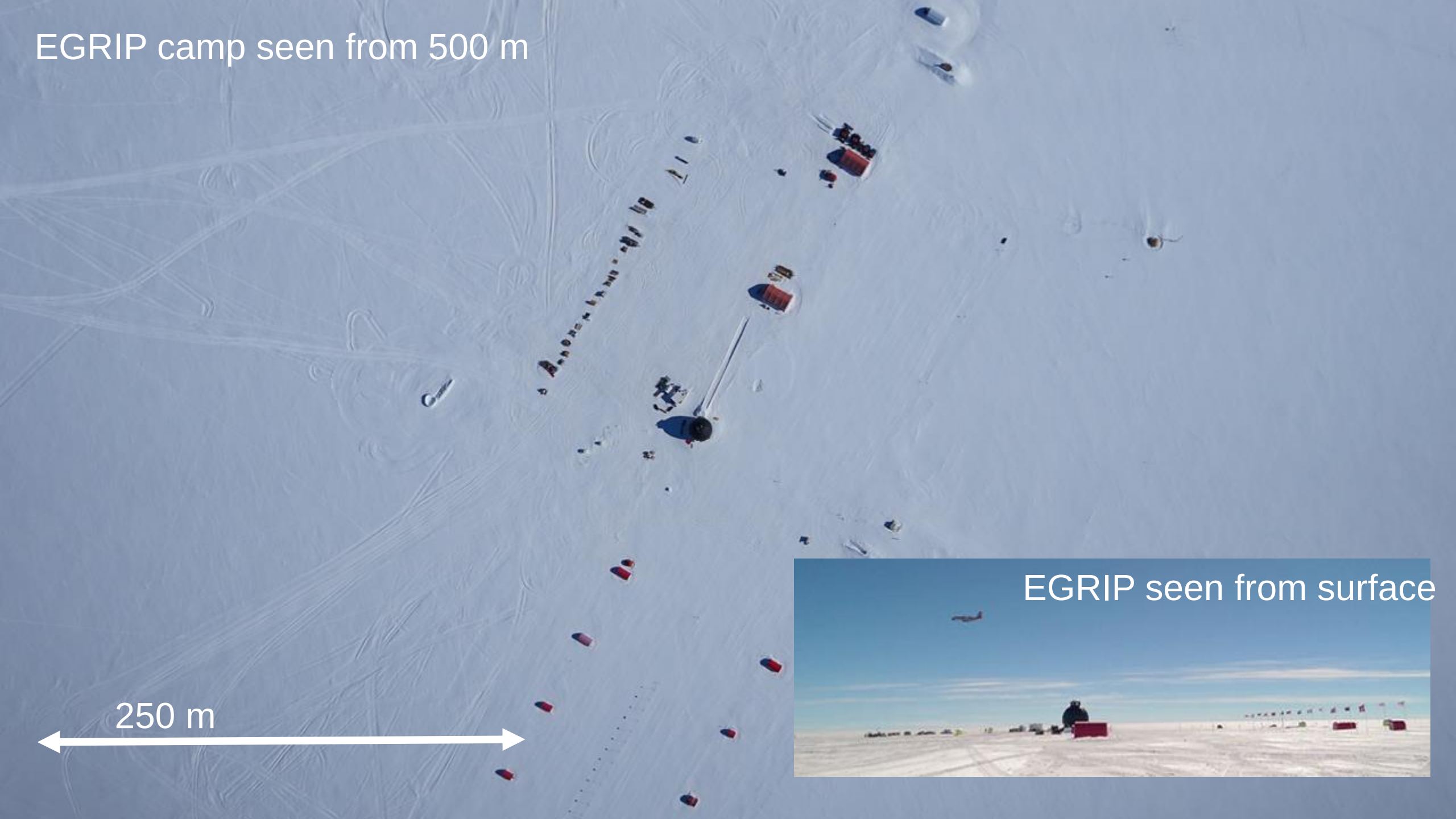


Drone mapping at EastGRIP: setup



Controlling a fixed wing drone from a pop-up tent. Aslak Grinsted, EastGRIP 2016

EGRIP camp seen from 500 m



250 m



EGRIP seen from surface



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