SNSA session for SRS 2021

Swedish National Space Agency, *Rymdstyrelsen*

SRS, 2021 March 16

Rymdstyrelsen
Swedish National Space Agency

AGENDA

- Staff at SNSA – responsibilities (All)
- SNSA Calls 2020 and 2021 (Per)
- Technology Research, Call 2020-T (Bianca)
- Balloons and Rockets, Call 2020-BR, Esrange (Kristine)
- New Frontiers (Per)
- Comet Interceptor (Vilgot)
- European Space Sciences Committee (Vilgot)
- Horizon Europe (Kristine)
- Questions

New structure at SNSA

New unit: Space Research and Development

- Director: Johan Köhler

Research staff:

- Bianca Manta – space physics, SPC
- Kristine Dannenberg – space exploration, access to space, HME
- Elisabet Sandelin – administrative support
- Per Magnusson – astronomy, atmospheric science, SPC
- Vilgot Claesson – Earth observation, Dostag and HME

Research Calls

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Statistics on calls from 2020

For economic reasons, SNSA has been forced to **cut back** on the **national programmes** in the period **2021–2024**. This includes the Research Programme, which has resulted in lower than normal success rates in our open calls:

Year	**2018**	**2019**	**2020**
Women	29%	33%	33%
Men	32%	27%	18%
Total	**31%**	**28%**	**20%**

Commitments for New International Space Research Missions

Based on **Call 2019-N:**

SNSA will co-fund Swedish participation in **Comet Interceptor** (more on this by Vilgot later).

Based on **Call 2020-N:**

SNSA will co-fund Swedish participation in **ARIEL** (reduced participation, without Swedish hardware)

No room for major new commitments in the near future !

Planned calls 2021

Calls open to all researchers:

- **2021-R**, Research projects 1-3 yrs, PhD positions 4 yrs, Release: March, Deadline: May 17, **14:00**
- **2021-C**, Career support 2-6 yrs, Release: March, Deadline: May 24, **14:00**
- **2021-N**, Research Infrastructure in space, Release: April (TBC), Deadline: June (TBC)

Calls targeted to invitees only:

- **2021-S**, Continued support to space infrastrucure, Released: February 12, Deadline: April 6, **14:00**

*All calls are released within **PRISMA !***

Technology Research – T Call

Bianca Manta

Rymdstyrelsen
Swedish National Space Agency

T Call
Technology Research for Space Applications

Purpose of T calls

To support technology research where the foreseen results should have important long-term applications in future space activities. The technology developed could be for space craft, sounding rockets, high-altitude balloons, or ground-based equipment.

Year 2020:

- First time Technology Research was treated as a dedicated T call
- Proposals evaluated by Technology Research Committee (TRC)

T Call

Technology Research for Space Applications

Call 2020-T:

- First call of SNSA managed within the Prisma system
- SNSA received 20 proposals in response to Call 2020-T
- Twice the number of proposals as expected
- Three proposals awarded research grants – *Success rate: 15%*

Future T Calls:

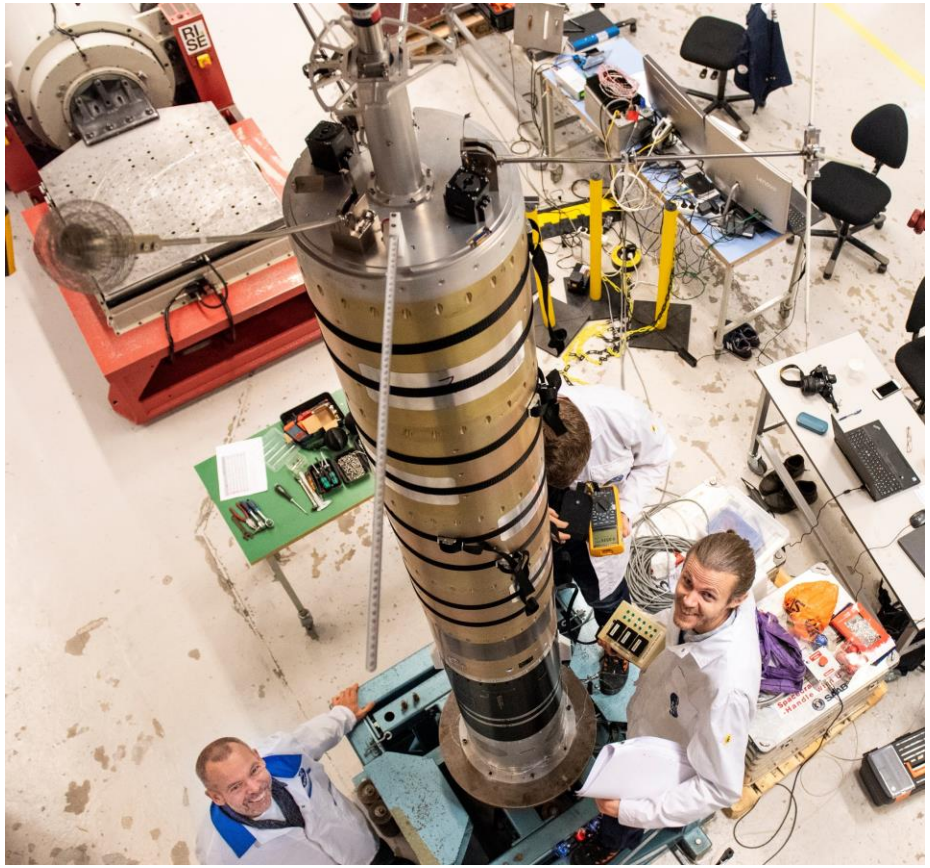
- SNSA plans to issue T calls approximately every three years

Balloon and rocket programmes

Kristine Dannenberg

Swedish national balloon and rocket programme

- Established in 2012 with a specific budget allocation (currently 7-15 MSEK/year)
- Objective: offer scientists balloon and rocket flights from Esrange for high quality research
- Calls for proposals issued on regular basis
- Last call in 2019/2020

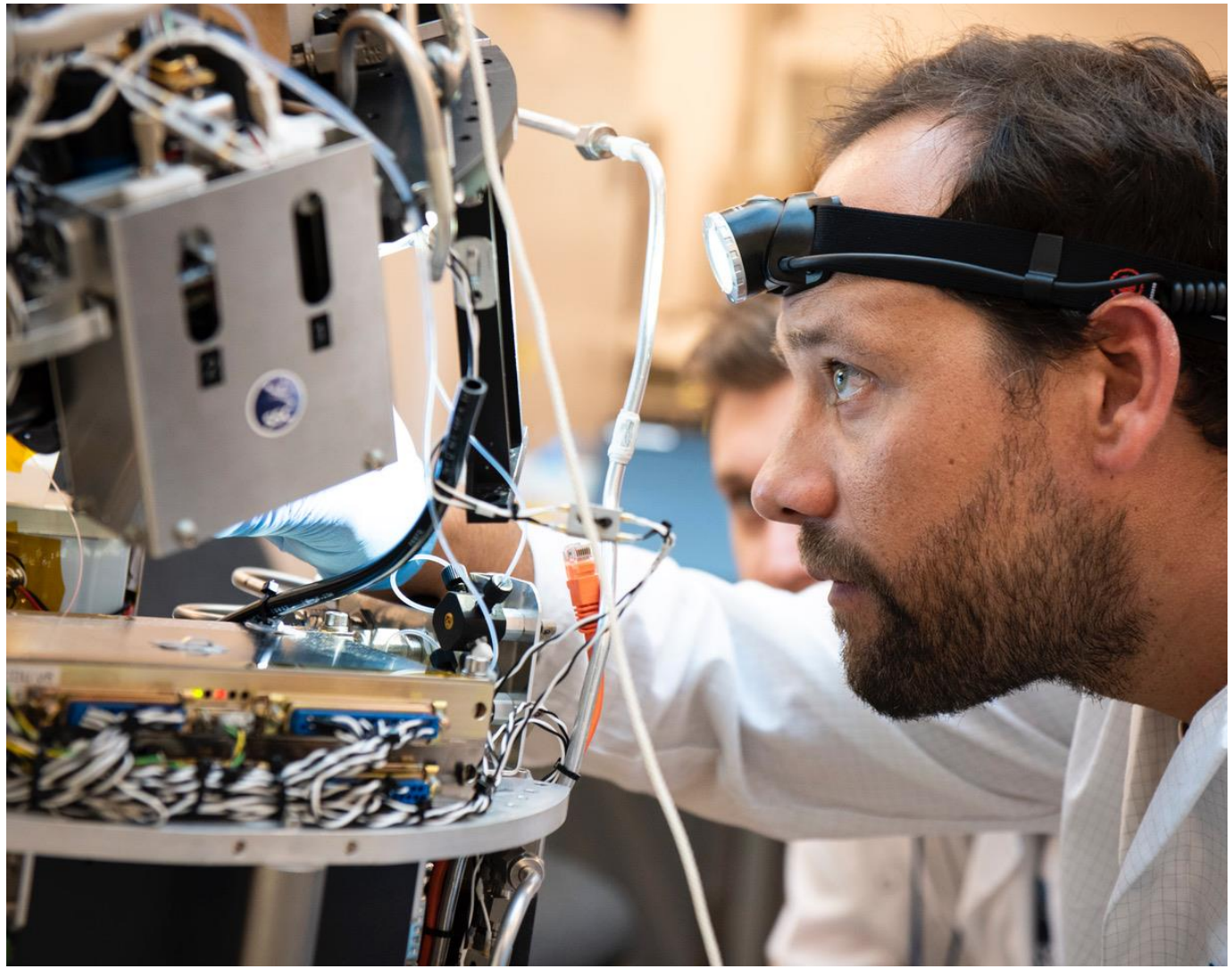


Status and plans

- One rocket project (BROR) and one balloon project (in-Situ Cirrus) selected in late 2020
- Any further decisions not before the end of 2021 due to budgetary limitations
- Available budget: 2,6 MSEK in 2022, 6 MSEK in 2023 and 14 MSEK in 2024

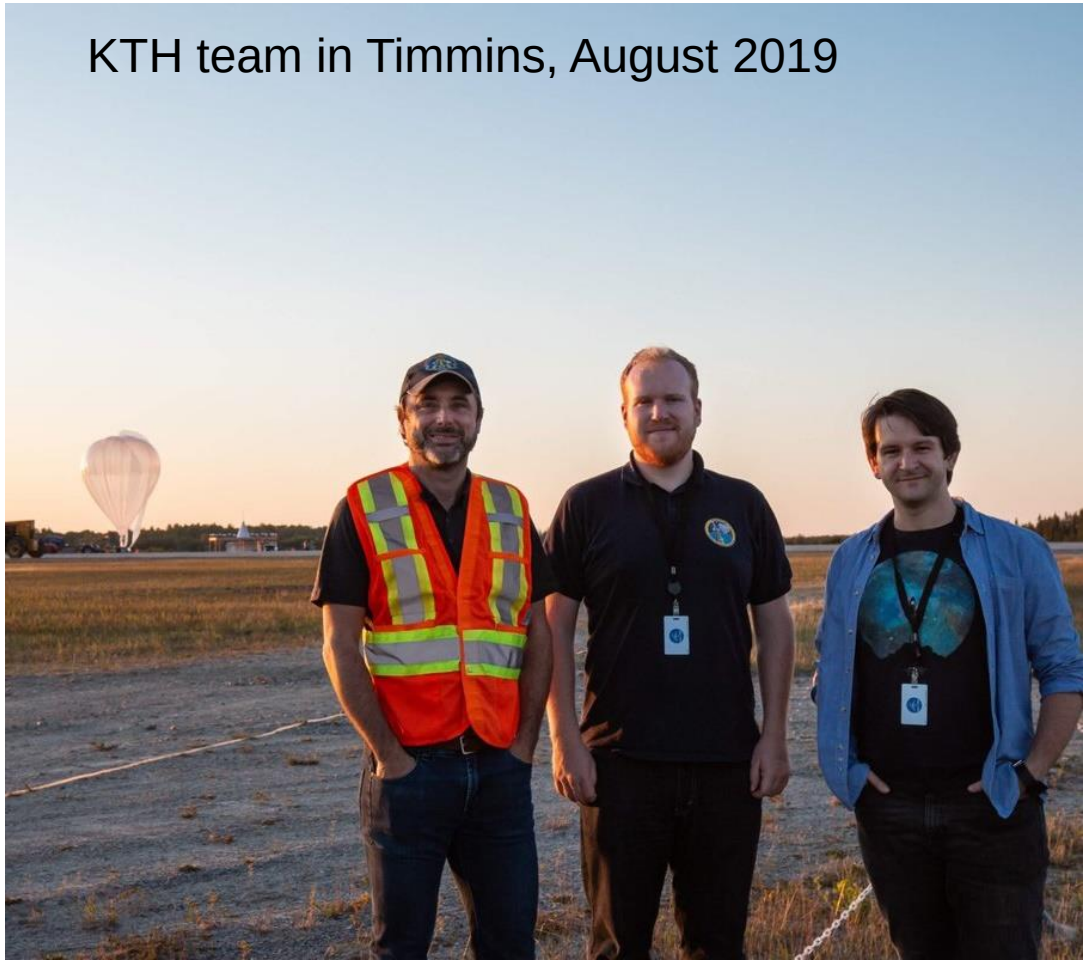
Microgravity laboratory on rockets - SubOrbital Express

- Around 6 min. of microgravity
- Modules developed by SSC and/or customers
- Launches from Esrange
- Maser-14 launched in June 2019
- Opportunities within ESA E3P programme (CORA)

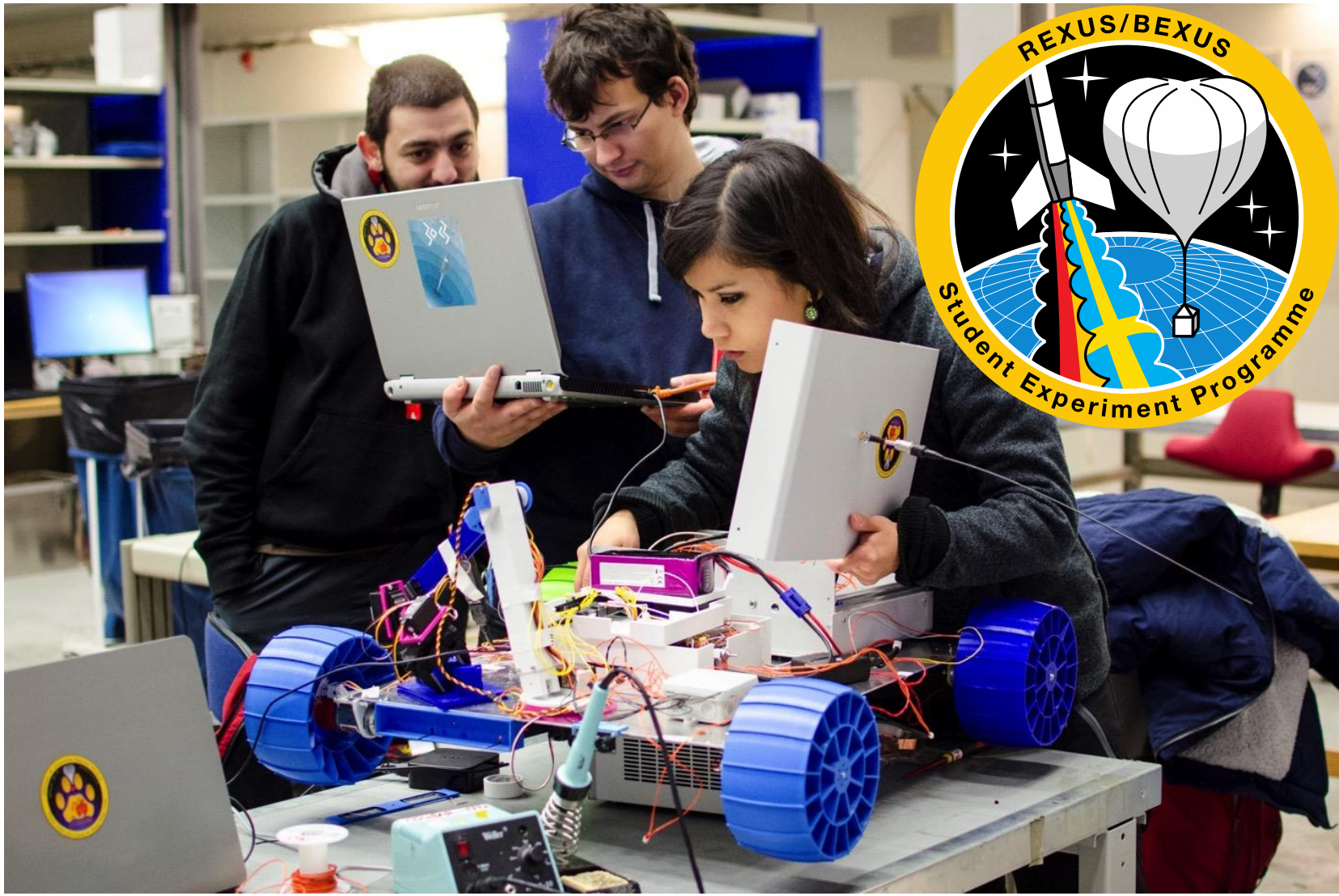


HEMERA project – Balloon infrastructure programme funded by EC

- Coordinated by the French space agency CNES, partners Canadian Space Agency, Swedish Space Agency, SSC and many others
- Scope 5 M€ under 2018-2022
- Several EC funded balloon flights from Esrange and Timmins offered to wider user community during 2019-2022
- Involves development of generic sensors for climate research, communication and outreach, balloon related technical activities etc.
- Hopefully to be continued after 2022


KTH team in Timmins, August 2019

German-Swedish programme REXUS/BEXUS in collaboration with ESA



ESA participation in the NASA programme NEW FRONTIERS

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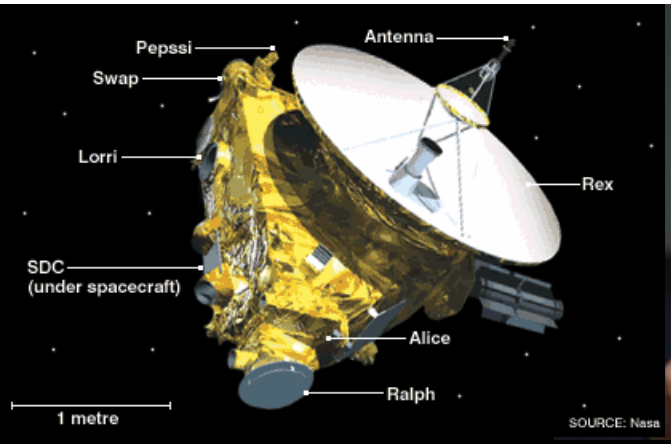
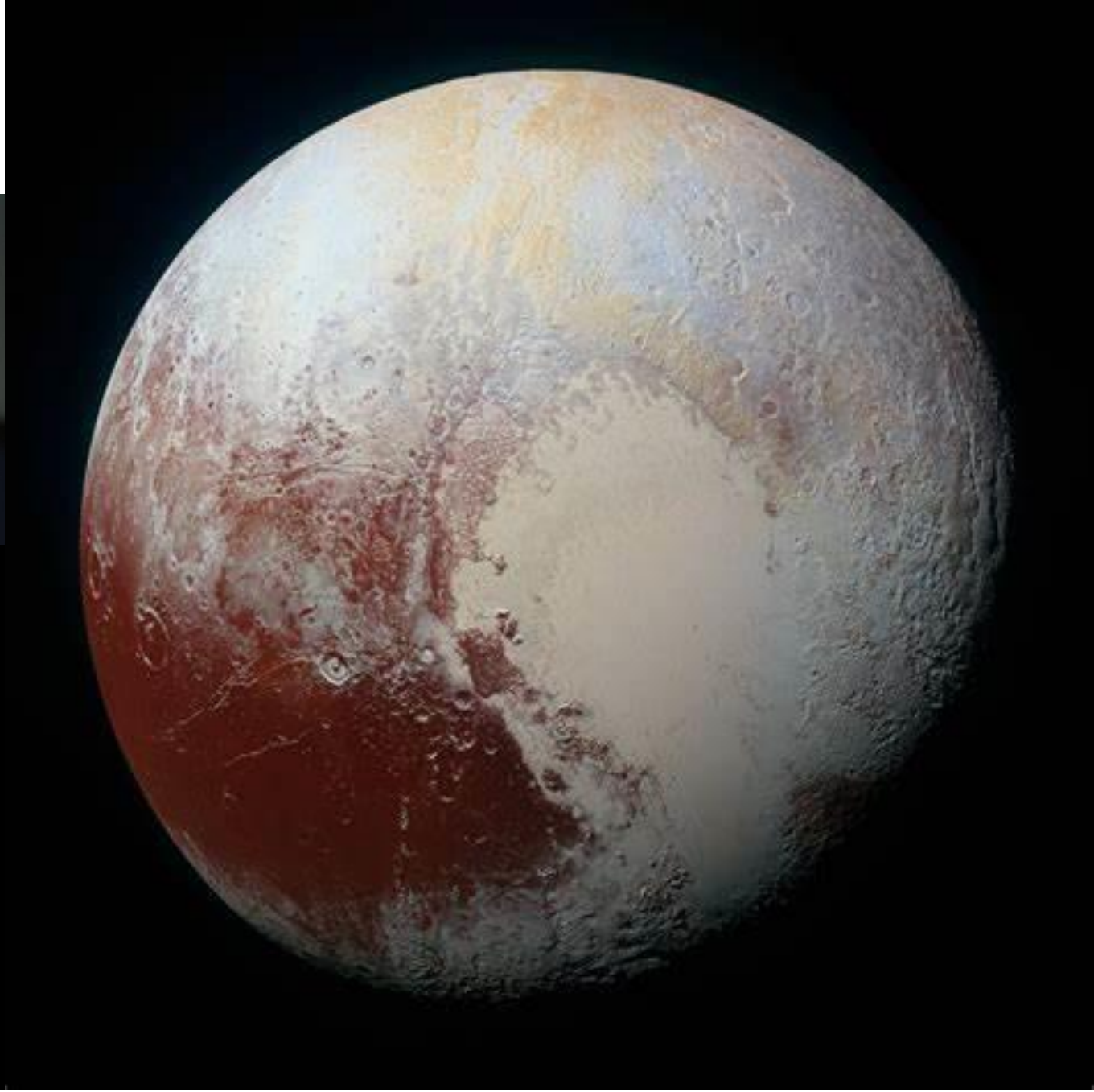
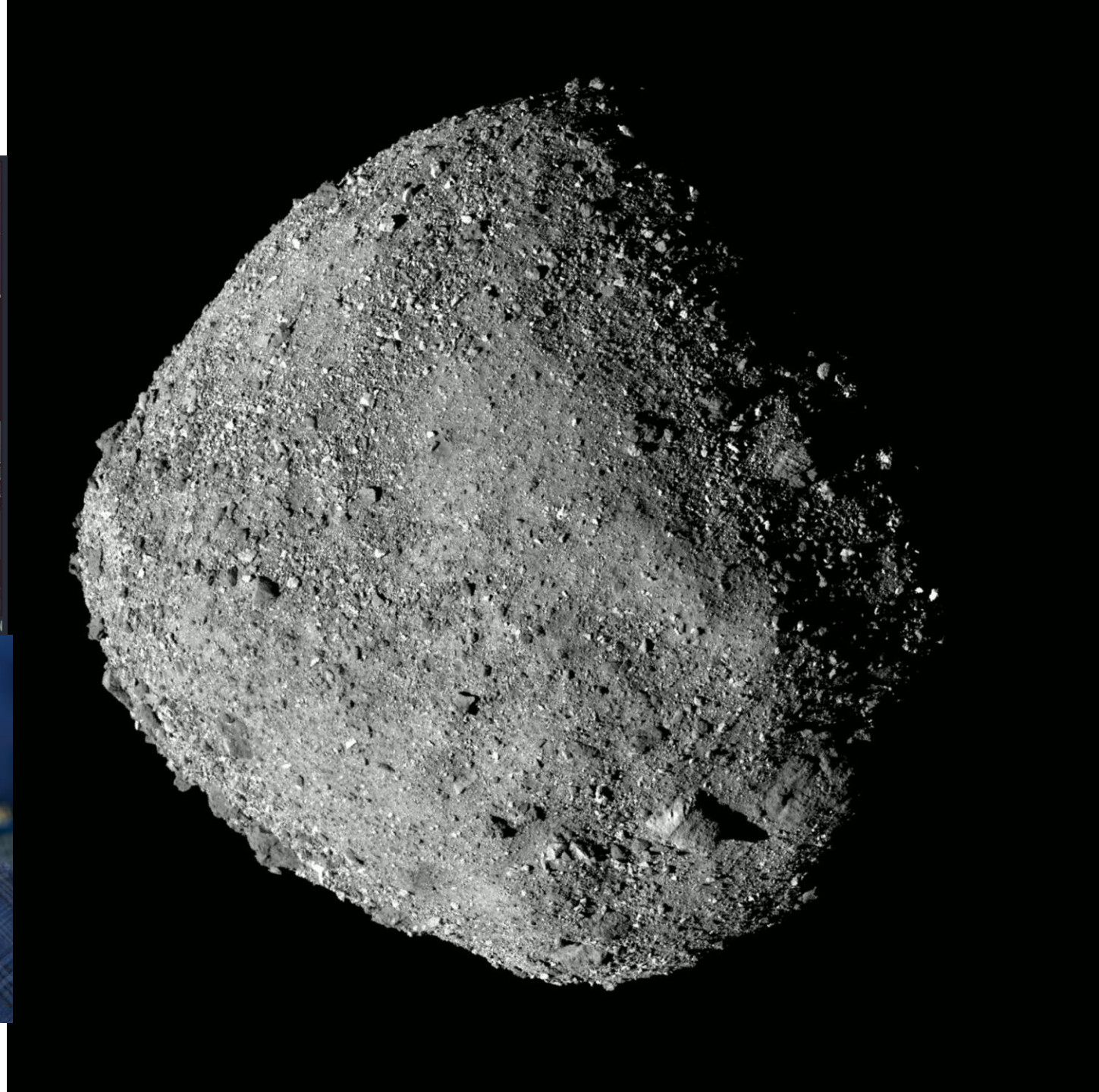
PLUTO & ARROKOTH





BENNU Sample Return



The NASA Programme NEW FRONTIERS

Purpose: Exploration of the Solar System

NASA mission budget: **960 M$**

Each mission is led by a **Principal Investigator** (not NASA)

Indicative **Themes** for **New Frontiers 5**:

- *Comet Surface Sample Return*
- *Io Observer*
- *Lunar Geophysical Network*
- *Lunar South Pole-Aitken Basin Sample Return*
- *Saturn Probe*
- *Ocean worlds (Enceladus)*
- *Venus In Situ Explorer*

European Involvement

Option for **US applicants** to NASA call:

- Include **European hardware*** in mission proposal to NASA (max ~50 M€)

Price payed by PI:

- Welcome **European researchers** in the **Science Team** with full rights

** Selected from ESA **list of items** that can be provided by European industry*

Comet Interceptor

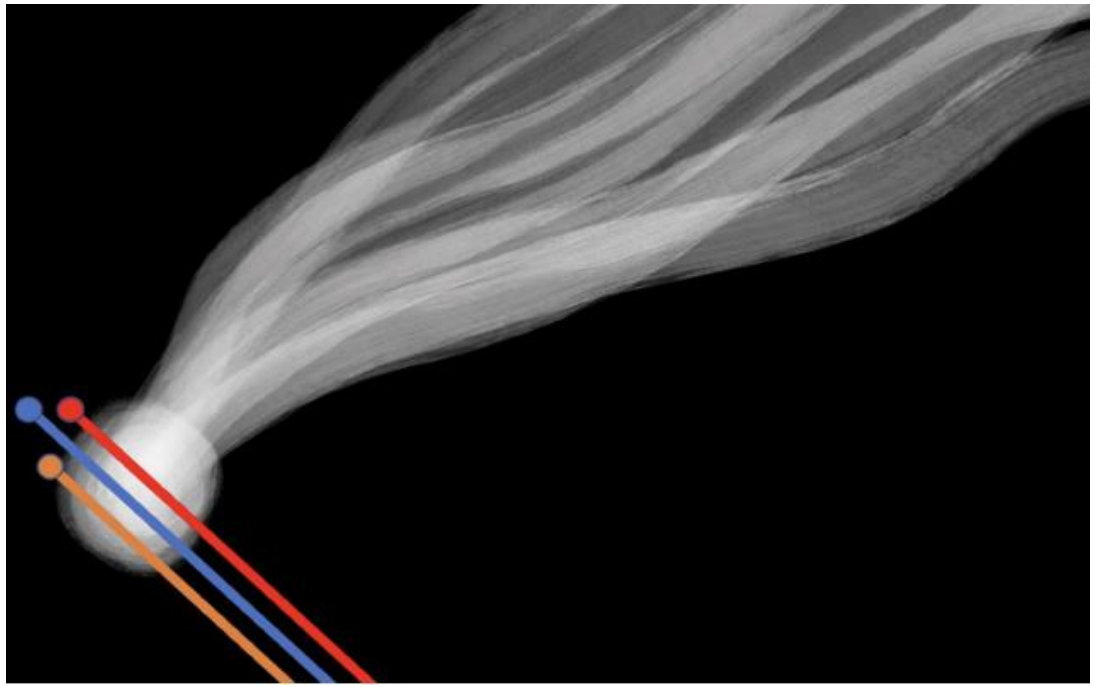
The ESA mission to a dynamically new comet

Vilgot Claesson

Rymdstyrelsen
Swedish National Space Agency

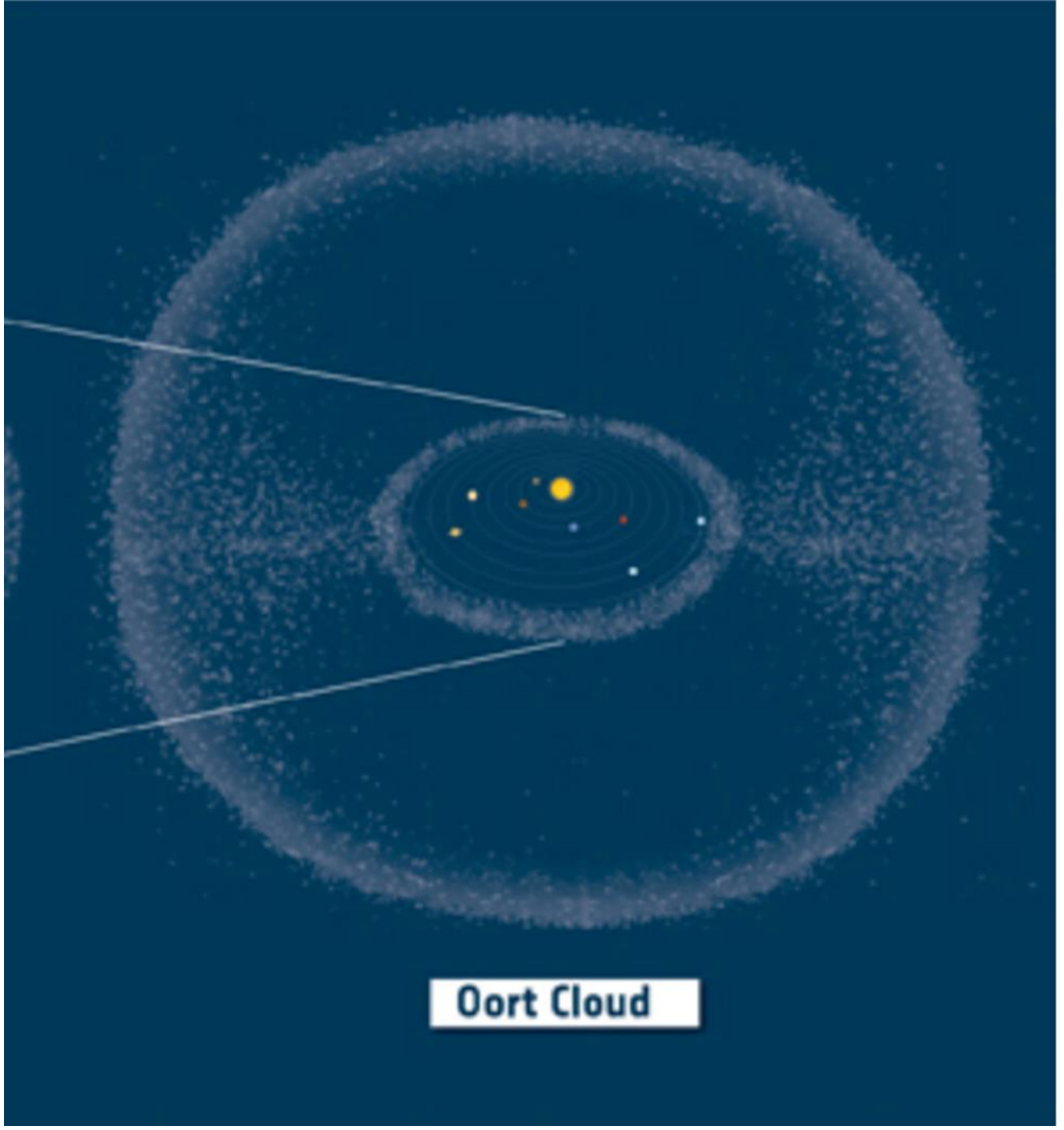
SNSA

- Financing part of Swedish participation – **IRF**
- 2019-N Call
- National Programme Manager Committee
- Agreement with ESA



Intercept a dynamically-new comet

- Comet Interceptor is a mission targeting a dynamically-new comet, or an interstellar object.
- A dynamically-new comet (DNC) is one that is nearing the Sun for the first time
- Surface ices are still as first laid down at the Solar System’s formation



Comet Interceptor

- Selected by ESA as its first F-class mission in June 2019
- Maximum cost to ESA ~ €150M.
- Shared launch with Ariel exoplanet telescope in 2029
- Wait for appropriate comet in Sun-Earth L2 point

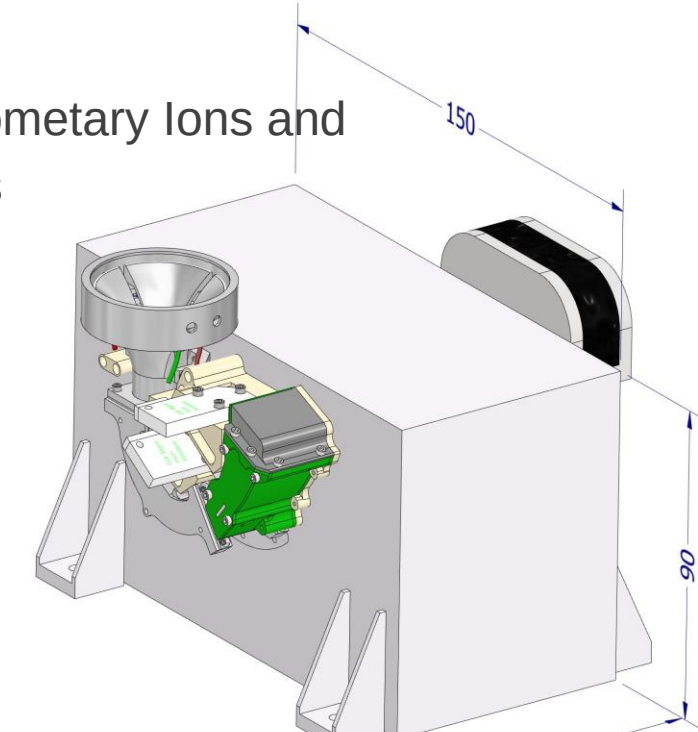
Payload

- Spacecraft A: (ESA)
  - **DFP : Dust, Field, and Plasma**
  - CoCa: Comet Camera
  - MANIaC: Mass Analyzer for Neutrals and Ions at Comets
  - MIRMIS: Multispectral InfraRed Molecular and Ices Sensor
- Spacecraft B1: (JAXA)
  - UV camera, Plasma Suite, Wide Angle Camera
- Spacecraft B2: (ESA)
  - Optical Imager for Comets, Entire Visible Sky coma mapper, and Dust, Field, and Plasma

DFP : Dust, Field, and Plasma

IRF contributing with:

- COMPLIMENT - COMetary Plasma Light InstruMENT
  (Niklas Edberg, IRF)
- SCIENA - Solar wind Cometary Ions and Energetic Neutral Atoms
  (Hans Nilsson, IRF)



European Space Sciences Committee (ESSC)

Vilgot Claesson

Rymdstyrelsen
Swedish National Space Agency

ESSC – looking for new members

- https://www.essc.esf.org/
- Providing independent scientific advice on space science matters – ESA, National agencies etc.
- Are you interested, send CV to Vilgot.Claesson@snsa.se
  before 2021-03-18

ESSC – Areas

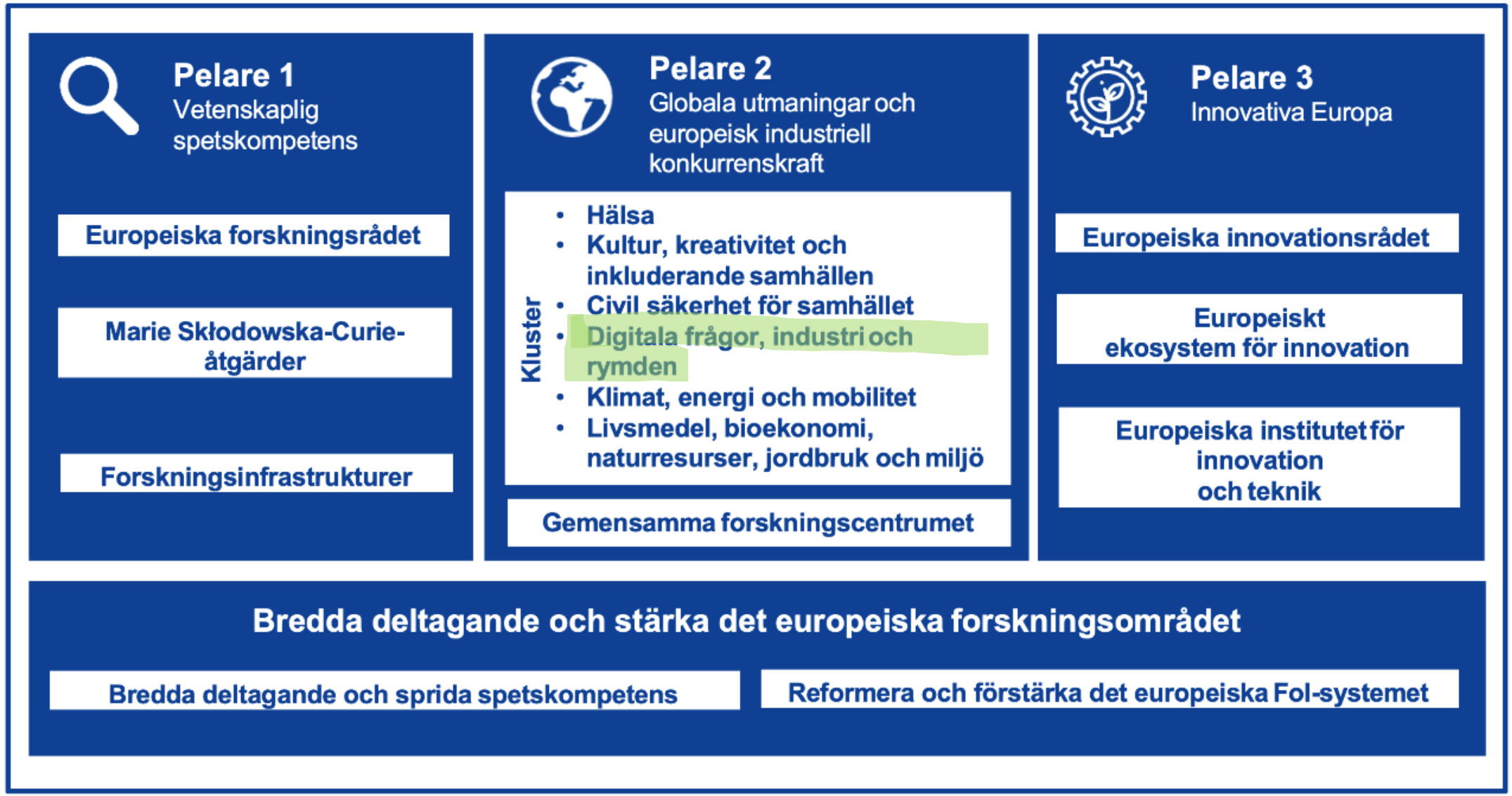
- **Astronomy and Fundamental Physics Panel** : Exoplanets, asteroseismology.
- **Earth Sciences Panel**: Atmospheric physics & chemistry, climate science, Big Data/A.I.
- **Life And Physical Sciences Panel**: Fluid physics, complex fluids, behavioural sciences, materials, plasmas.
- **Solar System And Exploration Panel**: Planetology, space physics, robotics/system engineering, small bodies/asteroids, magnetospheric physics.

Space in Horizon Europe

Kristine Dannenberg

Rymdstyrelsen
Swedish National Space Agency

Structure for Horizon Europe



Space – Destination 5 in the Cluster 4 ”Digital, industry and space”

- Destination 5 defined as ‘Open Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data’
- Indicative budget for the space calls 2021-2022 ~497 M€
- Focus on infrastructure, technology development, services and applications

Preparation of the Work Porgramme 2021-2022

- Proposal from the commission to be discussed in the ”Shadow Committee” – SE delegates from relevant ministries, experts from Vinnova and SNSA
- Formal approval of the programme planned 2021-2022 in April, first Calls published in May.
- Informal Swedish “referensgrupp” for Space with representatives from various players – heritage from Horisont 2020 with updates
- Usually quite short time for comments before the committee meetings, with a possibility to provide written comments later


Questions and comments welcome