

National partnership for

Science and Space Technology

Declaration of Intent for participation in the national partnership entitled "Science and Space Technology".

The partnership gathers scientists working in astronomy and astrophysics, atmospheric physics, fundamental physics linked with space research and space industry.

Vision: This partnership shall strengthen and expand the Danish contributions to space science and space technology with a special focus on ESA membership benefits

Mission: This partnership develops a framework and support structure for Danish institutions and companies within space science and space technology

Partnership goals

The mission is fulfilled by the introduction of a number of goals. The goals are phrased with the aim to implement the mission.

The partnership agrees on the following goals:

Goal 1: Coordinate Danish initiatives in space science and space technology to increase performance in ESA and non-ESA missions and to promote Danish exploitation of same missions.

Goal 2: Increase cooperation and mutual exchange of information between science institutes, industry, the Danish Agency for Higher Education and Science (DAFHES) and other public authorities to improve timing of activities.

Goal 3: Increase international visibility in relevant settings of Danish technical and scientific strengths and create relations to global partners.

Goal 4: Identify spin-off projects and increase growth in space industry.

Partnership themes

The partnership works in different areas to realize the goals. The objective of each of those areas, called “themes” is to fulfil one or more goals.

New themes may be added if the partners agree. A theme is represented by its working group. Working groups are always open to new participants, both for new and existing themes. A participant may be affiliated with one of the partners or with an entity outside of the partnership. The work associated with a working group is specified in a terms of reference decided and signed by the participants of the working group.

The current list of themes may be found in appendix 1. Themes can be terminated when completed or if they are no longer relevant. DAFHES updates the list of themes in appendix 1 when needed.

Partnership participants

Current participants:

- DTU
- Faculty of Science at University of Copenhagen
- Aarhus University (Faculty of Natural Sciences, Faculty of Technical Sciences and Aarhus Space Centre)
- Technical Faculty of IT and Design at Aalborg University
- University of Southern Denmark
- Terma A/S
- Gomspace A/S
- Space Inventor ApS
- GateHouse SatCom A/S
- SatLab A/S
- Danish Agency for Higher Education and Science (DAFHES)

The partnership is open for new partners.

Organisation of work

The work in the partnership can be divided into a general part and a themes part. The general part is where partners network, i.e. share info on forthcoming events, experience with space-based observations, announcements of science opportunities etc. This takes place by e-mail communication between partners and at general meetings (see below), where the partnership status is reviewed as well. The themes part is where persons representing partners (and non-partners) work on specific projects in working groups, as described in the “Partnership themes” section above.

DAFHES updates the calendar with regard to partnership meetings and invites the partners in cooperation with a coordination group of chairpersons or other appointed members of the working groups.

General meetings

General meetings of the partnership takes place at least twice a year. It is expected that partners prioritise participation in those meetings. The meetings are organised at alternating venues to stimulate new insight and new cooperation between the partners. External representatives may be invited to the meetings. The meetings will be organised by a coordination group to be assembled by the chairpersons from the working groups and DAFHES-Space.

Meetings in working groups

Each working group decide on an appropriate meeting frequency.

Principles

While the underlying general principle for any partnership is to build an alliance that can add advantages to all partners, there are a number of principles specific to the Science and Space Technology partnership:

- Partners are not expected to be involved with all activities.
- Decisions are based on a consensus principle.
- While decisions are taken in consensus, it does not imply that all partners necessarily agree.
- The Partnership hosts a number of working groups to cover relevant themes.
- New working groups may be formed if at least three partners support the proposal. Membership of working groups is open to all.
- The partnership supports coordination with other partnerships.
- Partners contribute to activities of mutual interest. Examples could be production of annual reports, partnership workshops etc.
- The partnership may use the newsletter "Brug rummet" to publish results and other news.
- The partners are allowed to refer to the partnership in applications or other communications when there is a relevant relation to partnership activity.

Obligations

The partners are committed to work for the vision, mission, goals and principles of the partnership.

Further, the partners commit themselves to prioritise participation in the general partnership meetings. This implies an expectation that the partners allocate time to participate in the meetings and prepare presentations or input as relevant to the agenda. The partnership builds on trust and a common understanding that a give and take strategy is necessary to form a successful partnership.

Participation in working groups is not mandatory, but highly recommended.

The partnership does not imply a financial commitment for the partners.

Financing

The Ministry of Higher Education and Science finances access to space infrastructure and its facilities and programs through the Danish membership of ESA and through EU Space programmes.

Common activities are financed by the partners and from resources from applications to private and public funds. Funding is inevitably required to realise the activities of the partnership, in particular under the themes. It is part of the activity in the working groups to identify relevant funds and apply for funding. This activity will be coordinated across the partnership as relevant.

Membership of the partnership

Universities, industry, GTS institutes (government-approved Research and Technology Organisations) and other entities who sign this declaration of intent are members (partners).

New potential partners are nominated by DAFHE, and approved by existing partners using simple majority.

New members of the working groups are either representing partners or entities from outside of the partnership.

Signature and date

The undersigned hereby joins the partnership "Science and Space Technology" and agrees to meet the partnership vision and mission to the best of his ability following the description in the declaration of intent.

Signature

Date

On behalf of:

Name of institution or company

Appendix 1 - Themes

Theme 1: Strategy for future involvement in international science and space technology projects

Involvement in science missions require a timely effort and involvement. The working group develops a strategy for identification of new opportunities for Danish scientists and space industry to be involved with major international projects/missions and creates cases for a timely involvement. Danish scientists are involved with international activities, e.g. participation in science teams, strategy development for ESA or NASA and science advisory boards. In general, there is a strong interaction with international colleagues.

The working group assesses how the international network can be used to build a strategy for Danish scientists and industry to be more involved with science missions.

Theme 2: Next major Danish Science and Space technology project

The working group assigned to theme 2 plans the necessary steps to decide on the next Danish project that delivers excellent science and builds on new and existing Danish technology. This include call for proposals, selection of successful candidates and final adoption.

Funding is essential for an activity of this magnitude, and one important part of the work is therefore related to applying for sufficient funding, e.g. from the Roadmap for Research Infrastructure (hereafter “Roadmap”). The working group works actively to influence application procedures by entering a dialogue with relevant entities when appropriate.

Proposals may span over different science areas, such as astrophysics, planetary science and exploration, atmospheric physics and fundamental physics.

At the time of partnership formation, a Roadmap process has been initiated and the project STEP has applied for being adopted and funded by the Roadmap. The working group will start its work by implementing STEP into the partnership.

STEP is a proposal for a Danish astrophysical mission to follow up on the TESS and PLATO missions. The objective is to make long time series measurements of stars

and exoplanets. The technical baseline will be a telescope payload on a small platform.

Another project to be considered implemented is a follow-up instrument to ASIM, called TOTEM. It is a copy of the ASIM nadir optical module, modified for mounting in a limb-viewing geometry. The module will allow for altitude resolution of thunderstorm cloud structure and electrical activity in the upper regions of the clouds and the atmosphere above, for use in climate studies and validation of MTG/LI lightning data products.

Theme 3: Development of Danish technological competencies

Danish companies comprise a variety of different competencies. Some have a comprehensive portfolio of technologies with space applications, while others are developing their first product for use in space.

The working group will:

- Maintain a database of Danish technological competencies.
- Establish, or be, an exchange of experience group e.g. doing business with ESA or others, space qualification of equipment etc.
- Keep each other informed of future exhibitions or meetings of interest to space technology industry.
- Coordinate participation at international exhibitions, e.g. IAC, by organising a Danish booth.