

Aurora

A new programme proposal for planetary exploration at ESA



Development of the programme proposal started in the end of 2000, following mainly 2 mandates:

- The European Space Strategy mandate for Europe to “...*explore the Solar System and the Universe...*” and to prepare “...for the “*next step*” in human space exploration : the exploration of the solar system”.
- It is consistent with the ESA Council’s Long-term Space Policy Committee’s recommendations and action plan.

Approach to prepare the technological side

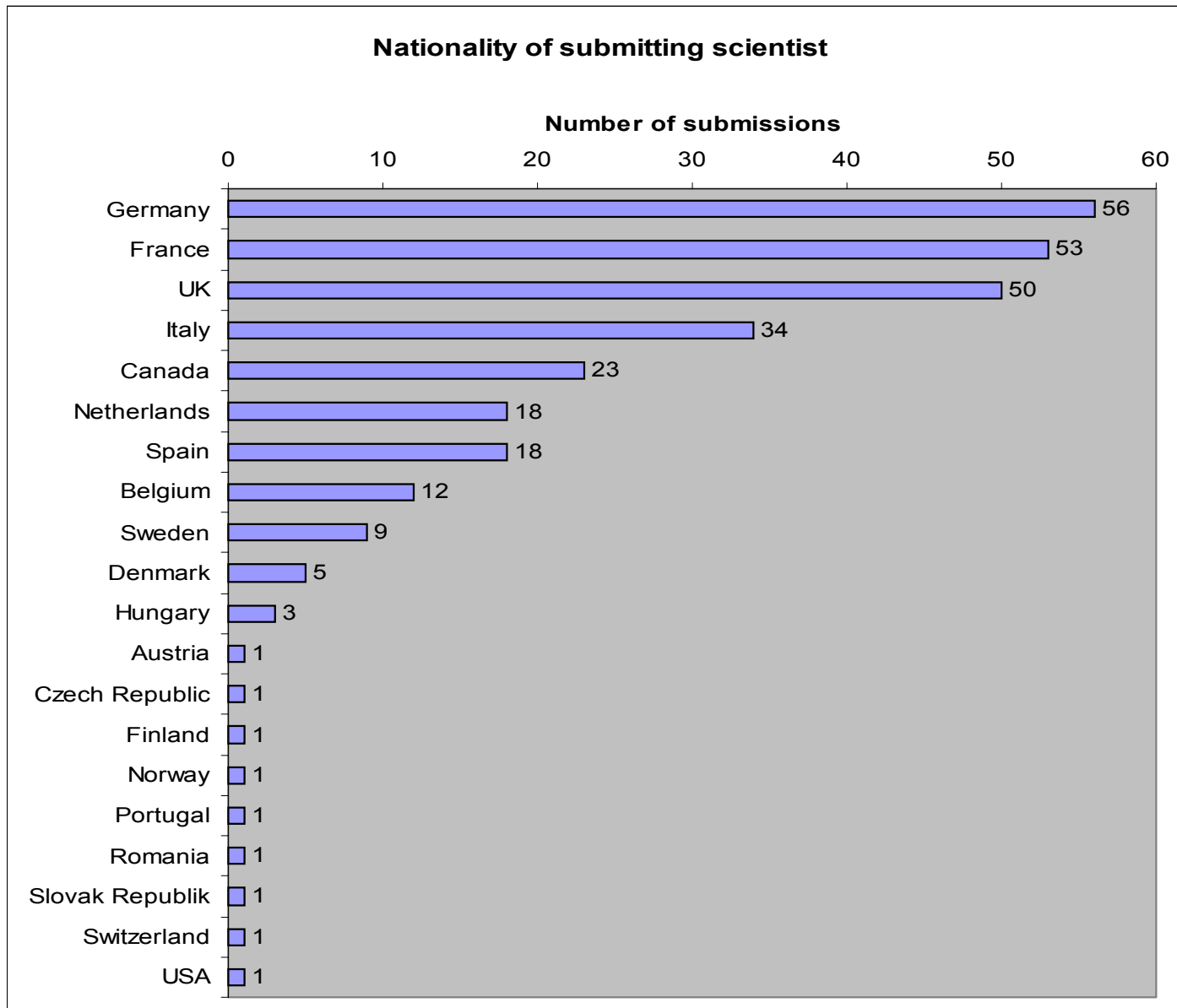
- Formation of a Technical Support Team
- Contracts to industry and academia

Approach to prepare the Scientific Background

- Formation of the Exploration Scientific Expert group
- Call for ideas

Call for ideas

- Was aimed at all scientists in Europe and Canada
- Deadline was 14th of March 2001 (running time only about 4 weeks)
- 291 submissions total



Results of the call for ideas

- Huge interest in Human Spaceflight aspects (~103 ideas in medical, life support, psychological issues → more than a third)
- Mars very prominent (almost 150 ideas)
- Also great interest in Europa and Asteroids
- Many ‘new’ scientists were reached

Planetary Exploration workshop

- 3/4. April 2001 at ESTEC, The Netherlands
- Bring together technological and scientific considerations

Scientific Priorities (Workshop)

- Search for life outside Earth:
Signs of prebiotic chemistry, fossil and or extant life in the solar system.
- Evolution of planetary environments conducive to life

Stepped approach

- mapping: remote sensing
- multi-site in-situ analysis:
 - i) on surface
 - ii) sub- surface
- sample return (incl. sample curation facility)
- human exploration

The Programme Proposal

Main intentions:

- Prepare for the expansion of human presence in the Solar System (esp. Mars)
- Search for extraterrestrial life/ lifeforms and its precursors

Targets and Scientific Priorities

- Mars (=> Exobiology)
- Moon (if needed as testbed)
- Near Earth Objects

Research of human mission related issues for
example confinement and isolation studies in
analogue environments.

Planetary Protection issues

Public awareness

Technological Priorities

Improving European capabilities, especially in fields where Europe is currently lacking

- Entry, descent and landing
- Micro avionics
- Alternative Power generation

or that play a key role in exploration and/ or have significant spin-off potential

- Propulsion
- Robotics

Programmatic approach

- Aurora programme proposal prepared by an interdirectorate group

Envelope programme will start with a preparatory period of 3 years, then:

- Envelope programme with 5 year periods
- Definition Component
- Development Component

Any Questions?

