

IMPLEMENTATION STRATEGY FOR THE ESA COSMIC VISION 2015-2025 PROGRAMME

C. Turon¹

Abstract. The present status of the implementation of the new long-term plan of the ESA Science Programme, ‘Cosmic Vision 2015-2025’, is presented.

1 Introduction

From April 2004, a new long term plan is being constructed for the Science Programme of the European Space Agency (ESA). This plan is the third one in a decadal series, and is following *Horizon 2000* in 1983-1984 (Bonnet & Bleeker 1984) and *Horizon 2000-Plus* in 1994-95 (Bonnet & Woltjer 1995). The numerous and enthusiastic answers to the Call for Themes for Cosmic Vision 2015-2025 issued in April 2004 by the ESA Directorate of Science show the richness of new ideas coming from European scientists, and the potential for innovation open to industry.

The first step of the elaboration of this new plan was the selection of four major themes addressing four basic questions concerning the Universe and our place in it:

- What are the conditions for planetary formation and the emergence of life?
- How does the Solar System work?
- What are the fundamental physical laws of the Universe?
- How did the Universe originate and what is it made of?

These four themes are described in detail in *Cosmic Vision 2015-2025, Space Science for Europe, 2015-2025* (Bignami et al. 2005), and were presented to the *Semaine de l’Astrophysique Française 2005* (Turon, 2005).

From that time, the Ministerial Conference that decides on the Level of Resources of the ESA Science programme met in December 2005, finally stopping the erosion of ESA’s space science budget, and fixing the Level of Resources for 2006-2010 to about 400 M€. Even if this is far from compensating the past 10 years erosion of the budget, this allows to consider starting to build the new long term plan.

2 Implementation strategy: Programme Slices

To implement the major objectives of Cosmic Vision 2015-2025 while keeping some flexibility in the overall planning, three successive slices of 1 to 1.5 B€ each are considered. The first Call for Mission Proposals would cover the first slice (2015 - 2018), and next slices would be implemented through subsequent Calls at 3-4 year intervals. The plan should preserve the balance between disciplines (Solar System, Astronomy and Fundamental Physics) and provide the flexibility needed to adjust the pace of implementation to the financial situation of the programme. The flexibility within each slice will depend on the size and number of missions, and on the inclusion of projects in international cooperation.

¹ for the Advisory Structure of the ESA Science Programme, catherine.turon@obspm.fr, GEPI-UMR CNRS 8111, Observatoire de Paris, Section de Meudon, 92 195 Meudon cedex

3 First Call for Mission Proposals

The first Call for Mission Proposals is expected to be issued by the end 2006, with an available budget of about 300 M€ for a first launch in the 2015-2018 timeframe. However, the Call is planned to be fully open, i.e. with no a priori size restriction, but with clear different categories of cost and length of development. Two categories of missions are considered

- Small/medium size missions, called M projects, with an overall cost to ESA smaller than 300 M€,
- Large size missions with an overall cost to ESA smaller than 650 M€. Two types of projects could be considered in this category: ESA led L projects or collaborative XL missions with ESA share at the same level of 650 M€. The missions selected in this category will serve for long term technological developments, with possible launch after 2020. XL missions would require clear partner declaration of interest.

The idea (as of June 2006) is to select three missions in each of the above categories for study phases, one mission in each category being eventually selected for implementation.

4 Schedule

For a Call for Mission Proposals issued by the end of 2006, the selection of the three M and three L projects for study phases should take place by mid-2007.

For M, medium, size missions, the successive steps will be: a study phase of about 18 months, followed by the selection of two of the missions for a competitive industrial definition phase of about 18 months. Finally, one M mission would be selected for implementation by the end of 2011 for a launch in 2018.

For L, large, size missions, the successive steps will be: a study and technology identification phase of about 3.5 years, the selection of two of the missions for a 18 month phase of technology developments, followed, after confirmation of the selection in view of the results of the previous phases, by two competitive industrial definition phases of about two years. Finally, one L mission would be selected for implementation by 2015 for a launch not earlier than 2020.

However, the Science Programme is currently under scrutiny by a Science Programme Review Team (SPRT) appointed by the ESA Council, and all the above elements, especially the timelines, are subject to confirmation pending the SPRT review.

References

- Bignami, G., Cargill, P.J., Schutz, B., & Turon C. 2005, ESA BR-247, A. Wilson Ed.
Bonnet, R.-M., & Bleeker, J. 1984, ESA-SP-1070, N. Longdon & H. Olthof Eds.
Bonnet, R.-M., & Woltjer, L. 1994, ESA-SP-1180, B. Battrick Ed.
Turon, C. 2005, SF2A-2005, Semaine de l'Astrophysique Française, F. Casoli et al. Eds., p 11