SPS2

Highlights of the ISO Mission

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FOREWORD

by the chairman of session SPS-2

This issue contains 17 papers presented in a special session at the IAU's General Assembly at Kyoto. Its intention is to summarize the results obtained so far by ISO covering astronomical topics "from comets to cosmology". It represents a first look; running the mission against the liquid helium clock has to have equal priority to the data evaluation. At the time of the meeting the predicted nominal lifetime of 18 months had elapsed. However, measurements of the residual helium in flight, using a novel method of heating it and determining its temperature increase, have shown that a gain of 11 additional months can be expected (fig.1). But that is not the only miracle. ESA managed to combine the components and know-how of 36 industrial contractors from 13 member states into a unified whole in the highly complex satellite. Even the scientific instruments developed jointly by institutes scattered across the whole of Europe work in their hostile cryovacuum environment as smoothly as during the prelaunch tests, in spite of initial scepticism about the cryo-mechanics. For those of us involved over more than a decade, the development of this space observatory was technically, scientifically and personally an exciting and satisfying time. It was crowned by the successful launch with the European ARIANE rocket and is now culminating in a highly productive scientific mission. ISO might well gain a prize for the most effective use of observing time: even slews are used for a serendipitous sky survey at the longest wavelengths (see fig. 2 and M. Kessler's contribution) and 2 instruments survey the sky in parallel to the prime observation.

The success of ISO was made possible by the dedicated and professional work of ESTEC's project team headed initially by D. Eaton and, since 1987, by J.A. Steinz and also by the Ground Segment Development of ESOC (A. Robson) and ESA's Space Science Department (B. Taylor). The excellent work of European industry, Aerospatiale, Daimler-Benz Aerospace and Linde, to mention but a few members of the large consortium, is specially acknowledged. The funding by all European member states and the national funding agencies of the countries involved in the instrument development, particularily France, Germany, the Netherlands and the UK, was a precondition for success.

Beyond those who had the privilege to travel to Japan and present the first results (fig. 3), a large number of scientists at the home institutes and in the instrument dedicated teams at the Ground Observatory are involved, and their dedication to ISO deserves special mention.

While the results summarized in the following give an exciting taste of ISO's capabilities, the boom of results can only be expected, as is usual in these missions, in the early years of the "postmission phase", when data evaluation becomes the prime task. We are confident that by the end of this century ISO will have boosted our knowledge of the cold universe considerably.

D. Lemke

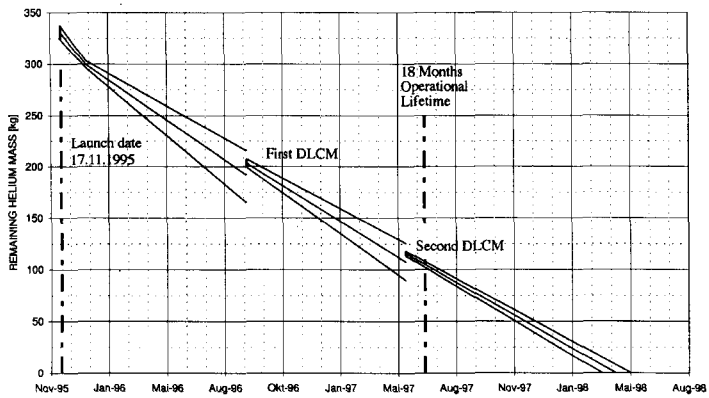

Figure 1. The lifetime prediction of ISO has become more accurate with every application of the Direct Liquid Helium Content Measurement (T. Paßvogel, ESA/ESTEC).

J. Andersen (ed.), Highlights of Astronomy, Volume 11B, 1105–1106.

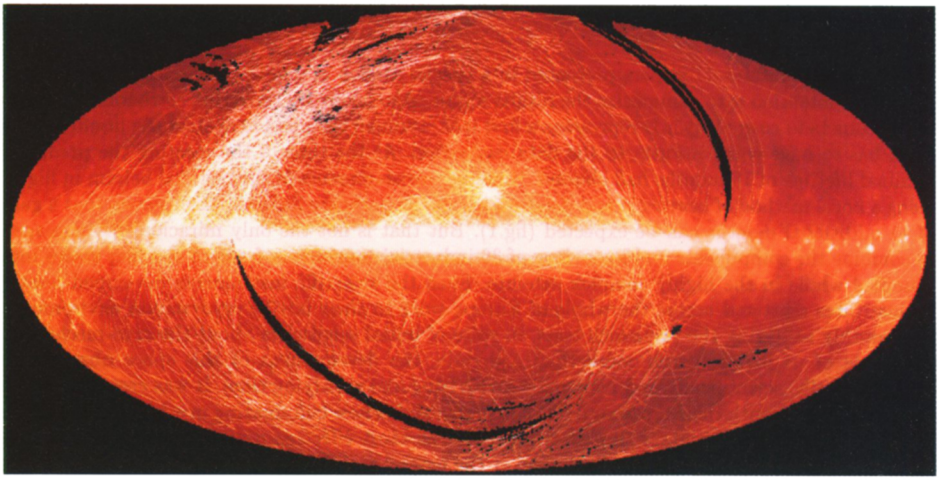

Figure 2. Sky coverage with the 175 micron seredipitous slews over the first one and a half years of the mission. The background is the 100 micron IRAS map (S. Bogun, MPIA).

Figure 3. Speakers and chairmen at this conference relax in the beautiful gardens of the Kyoto International Conference Centre. From left to right: H. Okuda, J.L. Puget, C. Cesarsky, P. Clegg, D. Lemke, M. Kessler, G. Fazio, H. Habing, A. Moorwood, L. Vigroux; in the foreground: T. de Graauw and G. Helou.

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