Göran Pilbratt
ESA Herschel Project Scientist

Göran Pilbratt, who was born in Göteborg in 1956, received his PhD from Onsala Space Observatory, Chalmers University of Technology, Göteborg, Sweden in 1986. His thesis topic was 'Very Long Baseline Interferometry (VLBI) observations of superluminal sources'.

That same year he joined ESA as a Research Fellow and was initially involved in ESA studies on space-based VLBI missions. He was appointed ESA Staff Scientist in 1988.

In 1991, Göran Pilbratt was appointed Study Scientist for FIRST and he became Project Scientist for the mission in 1995. Following his proposal, the mission was renamed Herschel in December 2000 to celebrate the bicentenary of the discovery of infrared light by William Herschel.

Göran lives in the Netherlands. When not working, he likes to be on the water, sailing, under water, diving, or on frozen water skiing, and he enjoys good meals before and after these activities. He also enjoys reading.

Photo credit. ESA

NordicSpace met Göran at the "Rymdforum" in Stockholm on 11 November 2009.

What is the status now, and has Herschel reached the final place at the L2 point?

Herschel was launched very accurately, and covered a million km in just the first two weeks! It has been in its orbit around L2 since a long time ago, and the commissioning and performance verification phases are almost over for two of the three instruments. Unlike what many people may believe, we did not simply send up Herschel in space and sat and waited. There are constraints, such as the temperatures (it took two months for Herschel and its instruments to "stabilize") but we cannot throw away valuable time to await the final orbit. Thus, the work starts immediately when the satellite is in the transfer orbit and where Herschel is or has been has been of no relevance. The commission phase took about two months, after that came the second phase lasting three months. This is the phase where all instruments are calibrated and made ready for use. Two of the three instruments have progressed more or less according to plan; PACS and SPIRE are almost operational. Unfortunately there was a mishap on the HIFI instrument in early August, but we are in a final phase to revise, among others the software, and we are almost ready to activate the instrument again. With SPIRE and PACS we currently carry out some types of routine operations. For HIPI the first routine operations will begin in February 2010.

You have worked with FIRST/Herschel since 1991, working with coordination of the scientific work. How many institutes have been involved in the project?

It is difficult to say exactly how many. The three scientific instruments were developed and built by international consortia of institutions. These consortia have different number of contributors, from between less than ten to over twenty, in almost as many countries. To answer this generally, almost all of ESA's member states have been involved in the project, and some more too.

The project is a large scientific project within ESA, running for nearly twenty years - two thirds of a generation –with natural delays and cost overruns. How do you maintain the necessary motivation?

One of the reasons this has taken so long is the desire to build such an observatory early on. It took a while from being just a plan until the exact work started; besides, several alternatives for the project have been carried out, as well as

studies of different scientific instruments. The result, the Herschel that presently operates in space, is far from the Hershel, or FIRST, that was proposed twenty years ago. The real Herschel is much more sophisticated and powerful than the original version twenty years ago.

The technology, especially regarding the various instruments, has been developed over the years, and the project has therefore continuously evolved through the years of studies and developing.

How is the observation time distributed or divided?

In principle everybody can apply for observing time at the observatory. We issue the so-called Announcements of Opportunity. We announce to the scientific community that we offer observing time, and provide the rules for how to apply. We receive many more proposals for observing programmes than we have time for. The different proposals are then evaluated by a time allocation committee comprised of professional astronomers. These are not employed at ESA but are hired to work on behalf of ESA. All observing proposals are given marks, and the assignment of observing time is based on that mark. Normally about 15 – 25 % of the proposals are given observation time for each announcement opportunity.

Will you follow the project further on in the future or will you start a new career?

I, as project scientist, am responsible for maximizing the scientific return of Herschel. I am involved in organizing the science operations of the observatory. I run various groups such as the science team, the time allocation committee, and the users' group, that provide guidance to me, and I closely interact with the people actually performing the operations. Everybody can apply as mentioned before, in contrast to Planck, where the observation time is reserved the participating research groups.

How is the cooperation with the industry?

The cooperation between us is working very well. The industry does not say – "we cannot do it". They say – "we can do it, but it will cost more money".

The Nordic countries participate all in the ESA-programmer- and, especially Sweden has national programmers in addition. How are the Nordic countries regarded within the scientific community?

Sweden, which I have the best knowledge about, has several groups that participate in the large international projects in addition to the smaller and more national projects, some of which are found in Gothenburg, Lund Stockholm and Uppsala. My view is that not only Sweden, but also the other Nordic countries have competent groups that participate in both Herschel and other ESA-projects with large success.

How is the interest from Swedish institutes concerning observation time at Herschel?

There exist Swedish contributions in the scientific instruments, from Chalmers in Göteborg and from the University of Stockholm, they have some guaranteed time. In addition there are also researchers that have successfully applied for observing time at the observatory.

What is your hope for the Herschel Project and what can the instruments tell us?

Most of what we work with is how stars are born, live and die. Remember that planets, like our own planet the Earth, are "by-products" when stars form. But how common is this? I am convinced that through observations of "nearby" star formation areas in our own galaxy we will get much new and more detailed knowledge abut how stars like our own sun originated and developed. Through observation of other galaxies we will learn more about creation of stars through the history of the universe. Our own sun is the third generation of stars, and it means that the sun contains materials from stars that do not exist anymore. Both you and I and the whole Earth consist of star ashes from dead stars. The circulation in a star's life is the field Herschel will investigate better. Our sun is in the middle of the life, about five billion years old and about five billion years remain. I am convinced that Herschel will help us understand much better how star formation actually happens, its history since the universe was very young, and provide answers to several of the questions we are preoccupied with.

The Herschel telescope is now in orbit and soon ready for the first scientific tasks. What are your feelings on that?

We are not in the situation right now that we can lean back; we still have work to do before we can say that the mission is on track. It is very important that we can get all instruments fully ready for "production work" as soon as possible. The helium volume decreases every day, and when the tank is empty Herschel will die. It is still very stressful, so honestly, I cannot say I have had time to feel very much yet. I can say, though, that it is a very thrilling project, and it is fantastic to be able to participate in it the way I am. I feel privileged to be able to devote my time to such interesting work.

I hope that later in the spring I can look back and have time to feel and enjoy the results. Hopefully by the time of 6 June – the Swedish 17 May! – we should be that far!