



FOREWORD

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First of all, I would like to express my gratitude for this opportunity to introduce the 2009 edition of the European Space Directory, which has achieved a well-earned reputation as a comprehensive source of information on the European space sector and a useful tool in the work of space professionals.

For European space activities, the year 2008 was dominated by a string of important mission successes as well as by the equally successful ESA Ministerial Council in The Hague. In fact, the successes achieved in orbit were instrumental towards also achieving a positive outcome at the Ministerial. The fifth "Space Council" held in September in Brussels created the political impetus and set strategic objectives. These objectives and targets were then matched with corresponding programme decisions in The Hague. In total, the decisions taken at the Ministerial Council represent close to 10 billion euros of investment in new and continuing programmes. These decisions have particular relevance seen against the background of the current financial and economic uncertainties, showing as they do Europe's determination to invest in space as a key sector providing innovation, economic growth, strategic independence and preparing us for our future.

The tenth anniversary of the International Space Station was celebrated in 2008, and from a European perspective there was no shortage of mission accomplishments in this unique cooperative project during the year. In February, the Columbus laboratory was launched to the ISS with Space Shuttle Atlantis. Two ESA astronauts, Léopold Eyharts and Hans Schlegel, were members of the crew. A few days after launch, Columbus was installed on the ISS and exploitation soon began, thereby making Europe a full, in-orbit partner in space station cooperation.

The other main achievement was the launch and flawless execution of the ATV Jules Verne mission. Jules Verne was launched from the Guiana space centre on an Ariane 5 rocket in March. In early April it carried out a perfect rendezvous and docking with the Space Station. After serving for almost half a year as an additional part of the Station, Jules Verne made its controlled, destructive re-entry into the Earth's atmosphere in September.

The second experimental Galileo satellite, GIOVE-B, was launched in April. It has validated the technologies to be used in the full

Galileo constellation, demonstrating their maturity. Another important milestone for Galileo in 2008 was the launch of the procurement of the full Galileo system by the European Commission with the support of ESA. We are now in 2009 moving steadily towards the final award of the Galileo Full Operational Capability (FOC) contracts.

In July, the Czech Republic's accession agreement to the ESA Convention was signed in Prague, allowing the country to join ESA as its 18th Member State already in November last year. The accession of the Czech Republic was all the more symbolic since the country is the first among those joining the EU in 2004 to also join ESA.

In September, ESA's comet-chasing spacecraft Rosetta closely observed the asteroid Steins on its way to its more distant destination. Other intriguing photos, from a close by-pass of the Martian moon Phobos, had already been sent to Earth from Mars Express a few months earlier.

In the field of telecommunications, the signature of the Small GEO Platform and the Small GEO Mission contracts took place in November. As in the case of AlphaSat, the Small GEO programme shows how ESA increasingly works on a partnership basis – in this case closely with industry. Other ESA partnerships of increasing importance are with the European Commission and with national agencies (such as for the exploitation of Columbus or the operating of the ATVs). In addition, ESA is expanding its cooperation with its international partners, in the USA, Russia, Japan, China, India and other countries around the world. This increasing number of partners has helped ESA grow its leverage and influence, turning ESA into a global space agency.

In the field of Earth Observation, important progress was achieved, in particular on GMES (delegation agreement between ESA and the European Commission, contract signature for Sentinel-2 and -3, go-ahead for Segment 2 of the GMES Space Component at the Ministerial.)

The year was also busy for Europe's Ariane rocket, with six launches of Ariane 5 carried out flawlessly from the launch range in French

Guiana, placing ten satellites and ATV-1 in orbit. By late 2009, Ariane will be accompanied by the Souyz rocket in Kourou, to be followed by VEGA shortly afterwards.

The year 2009 is set to offer a flying start for ESA's Earth Explorer family of Earth Observation satellites. Envisaged for launch in March, GOCE (Gravity field and steady-state Ocean Circulation Explorer) is the first in this series. The satellite has an inventive high-tech design combined with a unique aerodynamic shape. It will make use of new technology to map Earth's gravity field with unprecedented accuracy, while realising a broad range of fascinating new possibilities for the fields of oceanography, solid Earth physics, geodesy and sea-level research – significantly contributing to our understanding of climate change.

The SMOS (Soil Moisture and Ocean Salinity) mission is the second Earth Explorer, also scheduled for launch in 2009. As well as demonstrating the use of a new radiometer, the data acquired from this mission will contribute to furthering our knowledge of the Earth's water cycle, leading to better weather and extreme weather event forecasting.

But the Earth Explorers keep coming, for even a third is due for launch in late 2009, the CryoSat-2 mission. By monitoring precise changes in the thickness of the polar ice sheets and floating sea ice, Cryosat-2 aims to conclusively answer the question whether global climate change is causing the polar ice caps to shrink.

Looking much further, and away from Earth, ESA's Herschel and Planck missions will study the formation of stars and galaxies and the relic radiation from the Big Bang, respectively. Herschel will be the largest space telescope of its kind when launched in April. Planck is ESA's "time machine" that will look back at the dawn of

time, close to the Big Bang, about 14 thousand million years ago. Both satellites are true jewels of technology development, showing what European space industry is able to achieve in the new century. They are scheduled to launch into space in a dual launch configuration by an Ariane 5 ECA rocket.

In May, ESA astronaut Frank De Winne will fly to the ISS at the start of a six month mission named "OasiSS". This mission sees De Winne become the first European commander of the Station. For the first time the ISS crew will be enlarged to six astronauts. Human spaceflight will be a visible theme throughout 2009, with ESA's announcement this spring of the final selection of new members for the European Astronaut Corps, and the mission of another ESA astronaut, Christer Fuglesang, to the Station later in the year. The discussions on space exploration and Europe's role in this international endeavour are also moving forward – in June, an important high-level meeting will take place in Prague under the auspices of the Czech Republic's EU Presidency.

As has been made clear above, in space Europe has clearly turned a page: all the major European programmes decided back in the 1980s have today been carried through, giving us the opportunity to look forward and prepare for the future in earnest. The next generation of European space programmes will certainly depend heavily not least on the ability of European industry and operators to deliver on the demanding requirements which are sure to apply. A task I am fully convinced they are up to!