

Telecommunications



AmerHis

Hispasat's Amazonas satellite was successfully launched from the Baikonur Cosmodrome in Kazakhstan at 00:32 (CEST) on 5 August. On board was the ESA-funded AmerHis payload – the first switchboard in space. Results from the completed AmerHis in-orbit tests show that the payload is operating very well. Pilot operations will begin earlier than previously expected, with the intention of providing pre-operational services in the first half of 2005.

AmerHis enables Hispasat to provide high-performance interactive multimedia services anywhere within its four Ku-band coverage zones: North America, South America, Brazil and Europe. The payload works like a switchboard in space managed by a Network Control Centre on the ground able to configure the payload, assign capacity and manage user traffic. Four Gateways have been developed to provide the access system to the terrestrial network and user terminals have been developed. These are completely directed to the commercial

AmerHis

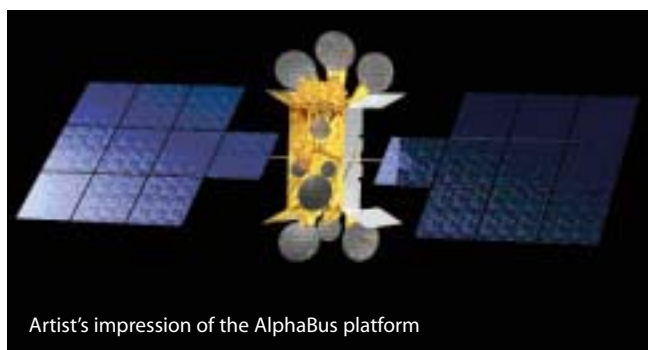


exploitation of new services, with the result that such services as high-speed Internet access, MPEG-based services, and video and radio on demand are available at a much lower cost.

The ambitious AmerHis project is the product of a collaboration between Alcatel Espacio, Mier Comunicaciones and Indra Espacio of Spain, Alcatel Space of France, EMS Technology of Canada, and Nera ASA of Norway. It is funded by ESA and supported by the Spanish Centre of the Industrial and Technological Development (CDTI). In December, the General Management of the Instituto Nacional de Técnica Aeroespacial (INTA) presented Alcatel Espacio with the Aerospace Technology Award for the AmerHis project.

AlphaBus

In the race to market, Europe's first 12-18 kW telecommunications satellite platform, known as AlphaBus, has concluded its preparatory phase in 2004. It is slated to begin its main development phase (Phase-C/D) in 2005 with a newly created European consortium.



Artist's impression of the AlphaBus platform

The preparatory phase began in 2002 and included the initiation of over twenty projects. The results have been promising, with each project having been designed to push the technology limits. The consortium is led by an unprecedented alliance between the French companies Alcatel Space and EADS Astrium, and the equipment providers are spread throughout Europe. AlphaBus is Europe's answer to satisfying the growing demand in the commercial high-power satellite market for the coming 15 years. Although well represented in the small and medium-size satellite markets, the current European platforms, Alcatel's Spacebus and EADS Astrium's Eurostar satellite families, have been limited to 12 kW. This has meant that between 1998 and 2003 the 4 billion Euro global market for high-power satcoms has been left entirely to US manufacturers. The AlphaBus design surpasses the growth constraints of existing European platforms by providing up to 50% more payload power (up to 18 kW) and significantly increased payload-mass and accommodation capabilities.

Applications

2004 has been a very productive year for the Applications line of the ESA Telecommunications Programme. Distribution of digital media to public venues, utilisation of different satcom solutions in support of forest-fire and disaster relief, use of interactive advertisement applications on personal video recorders, use of satcom in support of tele-homecare, and broadband access for regional development are just some of the applications where tangible successes have been achieved. A further application success came in the form of one of the telemedicine projects providing tele-consultation support in areas affected by the tsunami disaster in December.

The Applications area continues to be a key innovation engine within the ESA Tele-



Telemedicine via satellite

communications Programme. New proposals for highly immersive interactive TV, telemedicine and medical education for travellers, tele-psychiatry, e-government for a public-administration regional service, Internet access on high-speed trains, and dissemination of information to cars using satellite and WiFi have been selected as key areas for innovation.

ESA is progressively addressing thematic areas that require specific actions to improve the uptake of commercially viable initiatives. These areas – so far Broadband Access to All, Interactive TV, Tele-Home Care, Security/Civil Protection, Broadband to Trains, Infopoverty/Capacity Building – will host mid-sized Pilot Projects in the next phase of the Telecommunications Programme.

Telemedicine

Health professionals need telemedicine via satellite for prevention, diagnosis, treatment and education. This is the conclusion of the ESA initiative that plans to propose space solutions that are well-adapted to users' needs. A Telemedicine Working Group was formed in 2004, composed mainly of users (health professionals and patients' representatives) and not the industry itself. The results from this Working Group and this new user-driven approach are now available and the content for the ESA Telemedicine Programme is being finalised.

SATMODE

SATMODE creates a two-way satellite communications link on top of the normal TV broadcast by simply upgrading commercial equipment. During 2004, the SATMODE consortium has developed all of the prototypes and the system required to support interactive TV via satellite. The modem specifications were made public and will soon become a standard, thereby favouring market penetration through the easy plug-and-play of interactive applications. The end-to-end system is currently undergoing final integration and validation and will soon be made available to application developers. SATMODE is being developed by a consortium led by SES Astra, including Newtec, Thomson, NDS, ST Microelectronics and Spacebridge.





User Support Office (USO)

The USO provides a user-friendly environment where established industrial teams and newcomers can find tools and information tailored to the typical needs of the Telecommunications projects. In 2004 two on-line training courses have been published, covering the tender procedures in the context of the Telecommunications Programme and a vast overview of satellite telecommunication systems and networks, respectively. The encouraging success of these courses stood alongside a peak in the utilisation of the ESA-provided satellite capacity, uplink stations and facilities to support the development and the field trials of the projects. The remarkable total of over 2600 hours of satellite transponder utilisation has prepared the ground for including a valuable new asset in 2005 that will allow two-way satellite Internet access via the Belgacom DVB-RCS based platform.

SatLabs Group

The SatLabs Group is proving instrumental in ensuring the commercial success of the DVB-RCS standard, an open standard for broadband communications via satellite. The Group is working to ensure that different products implementing the standard are mutually interoperable and that service-provision costs are minimised. During the year, the Group laid the foundations for the interoperability certification programme: independent test equipment was developed and an independent test laboratory selected. Using these elements, the SatLabs Group will verify that user terminals comply with the DVB-RCS standard and support interoperability.

Digital Divide Initiative

The 'digital divide' refers to the gap between individuals, households, businesses and geographical areas with regard to both their opportunities to access information and their ability to communicate effectively. In its White Paper on Space Policy, the European Commission has placed this issue – satellites contributing to bridging the digital divide – at the forefront of Europe's strategic priorities in the run-up to 2007.

Thus an EC/ESA Work Plan was set up to identify the problem, underwrite the technical dossier, and elaborate a sustainability model. The activities undertaken by ESA cover both the technical and the socio-economic aspects of the problem. On the technical side, a series of technology and system studies and pilot projects have demonstrated the possibility to deploy optimised systems aimed at drastically reducing the cost of the bandwidth. The socio-economic studies have demonstrated that, even if the great majority of the European population is covered by terrestrial means, the satellite solution is a key element for providing universal broadband connections.