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satellite meteorology • european and international news

no. 14 may 2001

EUMETSAT

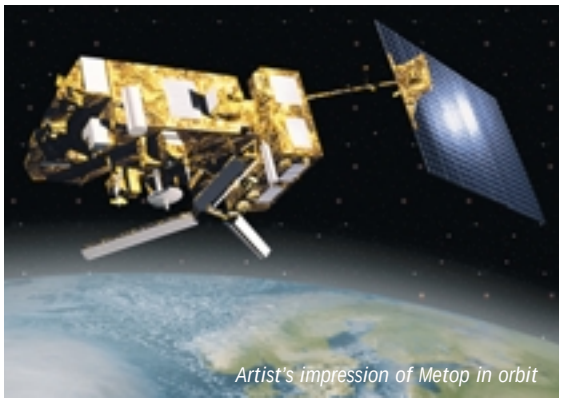
Europe's Weather Satellite Organisation

Dr. Tillmann Mohr presents the Metop launch services contract to Mr. Jean-Yves Le Gall, Chairman and CEO of Starsem, in the presence of Mr. Lionel Jospin, Prime Minister of France (centre) and Mr. Mikhail Kassianov (far left), Prime Minister of the Russian Federation.

In the footsteps of Gagarin

EUMETSAT has awarded a contract to Starsem, the European-Russian joint venture company, for the launch of its Metop satellites, the first of which will be lofted into orbit in 2005.

Emphasising its importance, the contract was signed in the presence of the Prime Ministers of France and Russia in Paris on 18 December 2000.



Artist's impression of Metop in orbit

The three Metop spacecraft, part of the EUMETSAT Polar System, will form Europe's contribution to the Initial Joint Polar System which is being coordinated with the USA.

The launch services contract with Starsem specifically covers the first two spacecraft – with an option for the third – and the launches will take place from Baikonur in Kazakhstan using the Soyuz/ST which incorporates the Fregat upper stage.

The Soyuz/ST is in fact a development of the early sixties launcher which launched Yuri Gagarin for the first manned orbit of the Earth.

Since then variants of the launch vehicle have been used more than 1650 times with an outstanding reliability record.

Starsem is a European-Russian joint venture formed in 1996 to oversee industrial and commercial operation of the Soyuz launch vehicle family.

The Soyuz is well adapted to the increasing needs of commercial satellite telecommunications systems – in particular satellite constellations – as well as scientific and Earth observation spacecraft.

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African users get three more years' service

Africa is to benefit from EUMETSAT's Indian Ocean Data Coverage service for another three years.

The decision to extend the service until the end of 2003 was reached by EUMETSAT following recommendations made at Africa's Fourth User Forum held in Kampala during September 2000.

Throughout the year EUMETSAT had been considering such an extension and its implementation was timely (see article on tropical cyclone Ando).

The main objective of EUMETSAT forums is to discuss with the current and potential user communities in Africa and the Mediterranean basin the means to obtain optimum benefit from meteorological satellite programmes and services.

As the fourth event of its kind, the five-day forum attracted over 130 participants representing 48 African and 12 European countries.

The Deputy Prime Minister of Uganda, Mr. Moses Ali, was among the high-profile party present for the opening of the event by Uganda's Minister of Water, Lands and Environment, the Honourable Henry Mugwana Kajura. Professor G.O.P Obasi, Secretary General of WMO, also attended the event for the first time.

Opening ceremony of the EUMETSAT Forum in Kampala (from left): Hon. Dr. Kezimbira-Miyingo, Minister of State (Environment), Dr. Tillmann Mohr, Director-General of EUMETSAT, Mr. Moses Ali, Deputy Prime Minister, and Prof. G.O.P. Obasi, WMO Secretary General

Discussions during the Kampala Forum focused largely on implementation of the PUMA project and, in total, 34 recommendations were put forward for EUMETSAT's consideration.

Training for users of MSG data before launch of the first satellite was a strong theme, as well as organisational arrangements and possible partnerships between African National Meteorological Services for the exploitation of new technologies.

A detailed report is available through the EUMETSAT User Service (**ops@eumetsat.de**) and also on the EUMETSAT website.

The success of this event was confirmed by a request to EUMETSAT by the participants to organise a fifth User Forum in Africa in 2002.

Kick-off for PUMA

The European Commission has confirmed its financial support, through the European Development Fund, to the Preparation for Use of MSG in Africa (PUMA) project.

The go-ahead was given on 12 December 2000 for the 11 million Euro project to assist a network of 47 African countries and Indian Ocean Islands, plus four regional centres in Africa, with the provision of equipment, training and application support to obtain and use the data from the new satellite.

The PUMA Task Team, including EUMETSAT and the WMO, actively contributed to the set-up of the project which is due to run from 2001 to 2005 under the delegated regional authorisation of the Kenya Meteorological Department.

The aim of PUMA is for the meteorological services to build capacity and responsiveness to user demands, contributing to project sustainability. An agreement has also been reached to enable the five Magreb countries and South Africa, currently not funded through the European Commission project, to benefit in a similar fashion.

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Printed in Europe. Published twice a year.
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Training spreads its web

Preparing the user community for the start of the new programmes is keeping the EUMETSAT Training Officers busy with courses running in Africa and Europe.

In Africa two further courses took place in training centres in Kenya, for the English-speaking countries, and in Niger, for the French contingent, bringing the total in this series to four in each centre.

These courses, coordinated with the WMO and hosted at Regional Meteorological Training Centres in Nairobi and Niamey, usually attract participants from some 20 African countries.

In Europe training events were organised during the year in Austria, Finland, Germany, Belgium, Portugal, and in Hungary, where the first such course for a EUMETSAT Cooperating State was held in Budapest in December 2000. In addition, a training workshop for the Satellite Application Facility (SAF) on Climate Monitoring was hosted by the SAF consortium in Dresden, Germany.

For some time now there has been an evident trend in the area of training delivery to exploit Computer Aided Learning (CAL) techniques, as reported in the last issue of IMAGE.

EUMETSAT is increasing the usage of such methods in its training activities through various projects aimed at generating CAL material for widespread use and also at ensuring that there exists a local capability to sustain and develop CAL initiatives, especially in Africa.

During February 2001 a group of meteorological CAL experts from Niamey and Nairobi spent two weeks at the EUMETSAT headquarters in Darmstadt, preparing for the next release of ASMET (African Satellite Meteorology Training) on combining satellite imagery and model output in weather forecasting.

In December 2000, one of the EUMETSAT Training Officers gave a presentation about EUMETSAT programmes and activities at a WMO regional training seminar in Nanjing, China, on the use of environmental satellite data in meteorological applications.

More courses are planned in the coming year in Europe and Africa with their content progressively reflecting a change of focus towards the applications of MSG data.

CAL experts in front of a full-scale model of the MSG satellite (from left): James Kongoti (Nairobi, Kenya), Emmanuel Kploguédé (Niamey, Niger), Joseph Kagenyi (Nairobi) and Koffigan Attitso (Niamey)

Amended Convention maps the future

EUMETSAT has more clearly defined its role in monitoring the world's changing climate and is now operating on a much broader mandate than throughout its first decade and a half.

Operational monitoring of the climate and detection of global climatic changes and the addition of the opportunity to open optional programmes are the major innovations included in EUMETSAT's amended Convention that entered into force on 19 November last year.

With these major changes and increased flexibility brought about by the amended EUMETSAT Convention, the path has now been set for the operation of the Organisation for at least the next 25 years.

Director-General's Desk

In the last few months EUMETSAT has moved into a new era. Since the amended version of our Convention came into force on 19 November 2000 our remit has widened, to include the operational monitoring of climate and the detection of global climatic changes.

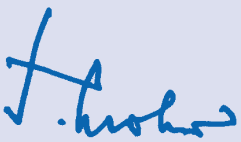
I have watched this situation mature for over half the lifetime of EUMETSAT and, together with changes to the approval process for programmes and associated projects, it will provide a sound and flexible way forward for our operation over the coming decades.

We have also taken two significant steps forward with the EUMETSAT Polar System (EPS). In December last year we awarded a contract for the development and implementation of the Core Ground Segment which will be essential to the control of the Metop satellites and the processing and distribution of the data.

In the same month we awarded a contract to Starsem, the European-Russian joint venture launch services company. This was a launch services contract for two Metop satellites with an option for a third. With these important moves forward we are well on the road towards the implementation of the EPS programme.

With the launch of the first Meteosat Second Generation (MSG) satellite planned for mid-2002, preparations are well advanced for the support to African countries in the use of the new system. The European Commission has announced its intention to provide funding for the Preparation for Use of MSG in Africa (PUMA) project that will provide both hardware and training for our African colleagues.

Many of these items are explained in more detail within this edition of IMAGE and serve to indicate that we are confidently moving forward in the 21st century.



From the archive

Tropical Cyclone Ando

By Jochen Kerkmann
EUMETSAT Meteorological Scientist

This year's Tropical Cyclone season in the Southern Indian Ocean started early on 2 January 2001 when Tropical Cyclone Ando was born at about 11°S and 61°E, some 1200 km east of the northern tip of Madagascar.

It is in the area of the Southern Intertropical Convergence Zone, which, at the start of the year, was positioned between the Equator and 10°S.

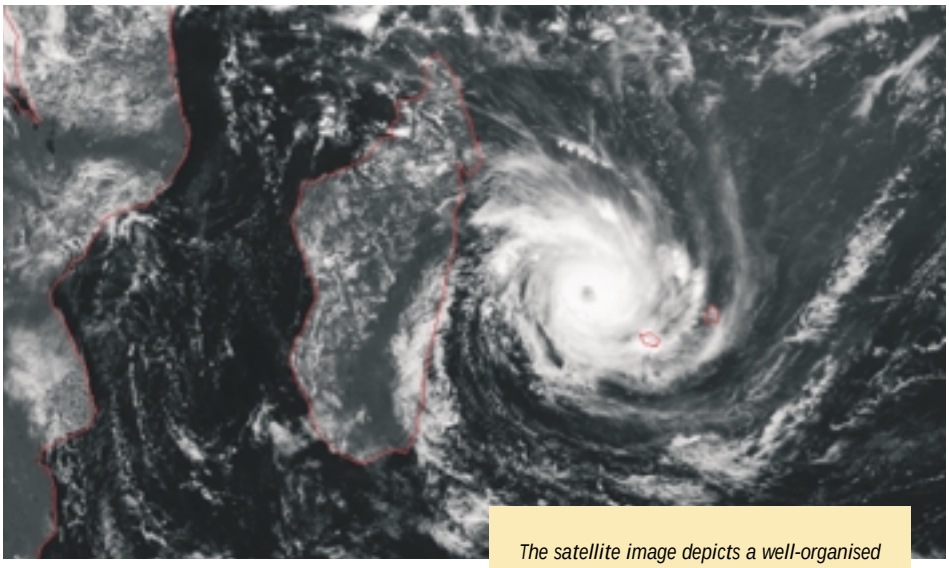
In the beginning, Ando moved to the south-west, towards the central part of Madagascar, before rapidly intensifying as it tracked beneath the subtropical ridge.

Luckily, on 5 January, Ando turned to a more southerly direction, moving at 15-18 km/h, so that it passed right between Madagascar and the island of Réunion, at a distance of only 240 km from La Réunion.

If Ando had hit one of the islands it could have caused severe damage.

Its intensity can be seen from the Meteosat-5 visible satellite image (below). Ando reached its maximum intensity on 6 January 2001 with a central pressure of less than 930 hPa (Tropical Cyclone category 5), wind maxima of 225 km/h and gusts up to 270 km/h, as reported in the warning of the Joint Typhoon Warning Centre located on Guam Island. Maximum reported significant wave height was 6 m.

Meteosat-5, operating at 63°E under EUMETSAT's Indian Ocean Data Coverage service, played a key role in tracking and predicting the path of Ando. The service was recently extended to continue until the end of 2003.



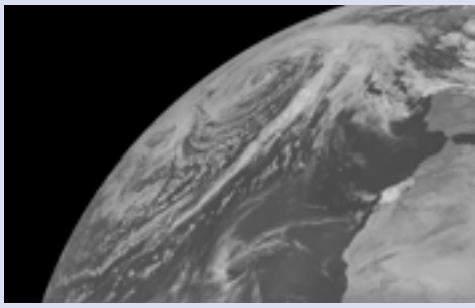
Cyclone Ando, 6 January 2001, 9:00 UTC

The satellite image depicts a well-organised symmetric storm system with a concentric eye of about 40 km and intense, solid core convection. Further features of Ando, as depicted by animated water vapour images and data from the NASA scatterometer QuikSCAT, included a symmetric wind field with 65 km/h wind radius extending to about 280 km and an impressive high-level outflow over the storm system. One day later, on 7 January 2001, Ando started weakening as a result of a quasi-stationary longwave trough situated over South Africa. It finally disappeared on 11 January 2001 in the area south-east of southern Madagascar.

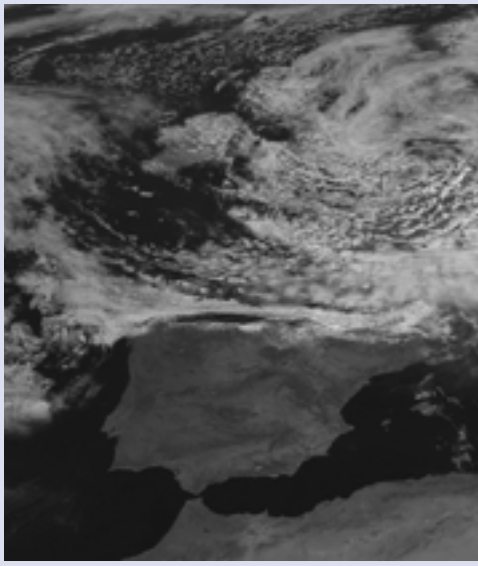
Meteosat-5's tenth birthday

On 2 March 2001 Meteosat-5 passed its tenth birthday in space, quietly performing its routine task of imagery from high above the Indian Ocean. Since its launch in 1991 it served as the primary service spacecraft at 0° Longitude until 1997. From July 1998 it has been producing regular imagery from 63°E.

Rapid scanni a new servic



Examples of the Meteosat complete rapid scan area and European sector images



A Rapid Scanning Service with ten-minute Meteosat imagery will be introduced later this summer.

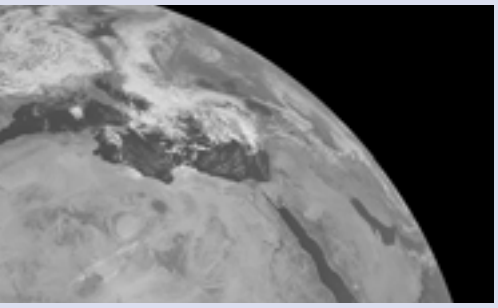
This initiative comes as a direct response to user demand and follows the support given to the Mesoscale Alpine Programme in 1999 using Meteosat-6.

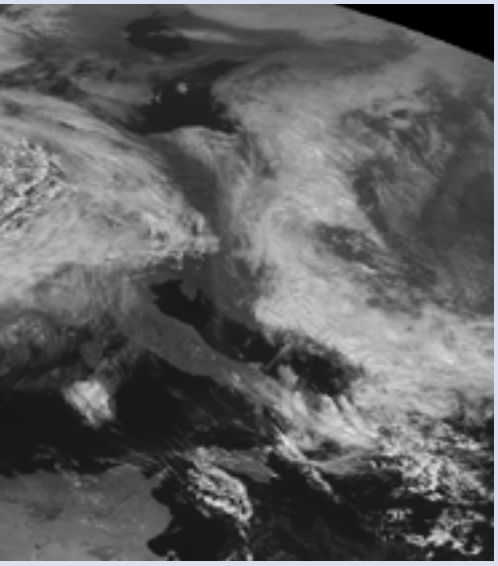
The service will be based on the further use of Meteosat-6 (currently the stand-by spacecraft) and the utilisation of parts of the ground system normally used for stand-by or testing purposes.

Its introduction follows successful operational trials to check out the distribution of rapid scan data to the wider EUMETSAT user community.

The standard service will provide scanning from 13°N – 70°N at ten-

ing – ce for users





minute intervals with data available for dissemination to users up to ten minutes after the corresponding scan is complete.

The data will be available in various graphic formats covering the complete scan area, and also the European sector, both illustrated above.

Data dissemination to the users will be via the Internet.

Interested users should contact the User Service (e-mail: ops@eumetsat.de) for further details regarding access to the data.

Full details of the Rapid Scanning Service, the scanning schedule and data formats can be found on the EUMETSAT Web pages, under Data Products and Services.

Lessons from Lille

By Brendan McWilliams
Director of Administration, EUMETSAT

EUMETSAT's important role in the European initiative on Global Monitoring for Environment and Security (GMES), was recognised at a symposium held in Lille, France, on 16-17 October 2000.

Organised through the French presidency of the European Union, the high profile event was attended by several Government Ministers with top level representation from the major players in the European space endeavour. EUMETSAT was led by its Council Chairman, Dr. Henri Malcorps, Director of the Royal Meteorological Institute of Belgium.

EUMETSAT was highlighted on many occasions as the premier exemplar of a successful operational space agency, whose activities were firmly based on the clearly expressed needs of a demanding user community. Its role in GMES, both as paradigm and participant, was seen as crucial.

The GMES concept addresses a perceived need for Europe to have its own operational systems for the observation and analysis of environmental data, both to facilitate an independent political decision-making capability on global matters, and for dealing with specifically European environmental issues.

At the symposium EUMETSAT itself reiterated its commitment to the initiative, confirming that its amended Convention provided a clear framework for involvement in such activity, and that its Satellite Application Facilities (SAF) on "Climate", "Oceans and Sea Ice" and "Ozone" were specifically targeted at developing products in the wider environmental field.

Much emphasis was placed on the importance of the European Strategy Paper, being prepared by the European Space Agency (ESA) and the European Commission (EC) and approved by their respective Councils in December 2000, as a blueprint for the way forward.

It was also seen as essential that the EC's Sixth Framework Programme should take account of the initiative.

French Research Minister Roger-Gérard Schwartzenberg echoed the ambitions of all involved in the event by saying that "to move further down the path towards the implementation of the GMES initiative means reconciling science with the environment, and in a more general sense, science with society."

Symposium on Global Monitoring for Environment and Security, Lille, France, 16-17 October 2000

MSG Ground Segment facility delivered

Meteosat Second Generation's (MSG) new Data Acquisition and Dissemination Facility (DADF) has won the provisional seal of approval from EUMETSAT.

The successful completion of tests in Darmstadt, Germany, highlighted the new DADF's superior capabilities – an eight-fold increase in dissemination communication bandwidth and the use of image compression modes – compared to the existing facility.

This will mean all internal and external data will be more readily available to the user community.

The DADF is the central point for the external interfaces of the MSG ground system and will receive data from several internal and external sources:

- MSG images from the Image Processing Facility
- meteorological products from the Meteorological Products Extraction Facility
- bulletins from the WMO Global Telecommunication System (GTS)
- forecast data from the ECMWF
- foreign satellite data from Météo-France
- future products from several SAFs.

Configurable parts of these data sets, images and products will be distributed internally in the MSG Ground Segment, externally to the GTS Regional Telecommunications Hub in Offenbach, Germany, and disseminated to user stations via the MSG spacecraft.

The latter is the main interface to the EUMETSAT user community, particularly for the near real-time dissemination of the MSG images.

New Head of Finance

Peter Hirschfeldt became the new Head of Finance on 1 January 2001, replacing Dominique de Soye who had been with EUMETSAT since 1989.

He has spent many years working in International Organisations and most recently in institutions of the European Union.

One of his main objectives in this post will be to introduce new approaches for the management of financial information.

EPS Ground Segment under way

EUMETSAT has awarded a contract to the French-based company, Alcatel Space, for the design, development and delivery of the Core Ground Segment (CGS) for its forthcoming polar orbiting meteorological satellite system.

Based on EUMETSAT specifications, Alcatel Space will design the EUMETSAT Polar System CGS to perform the following tasks:

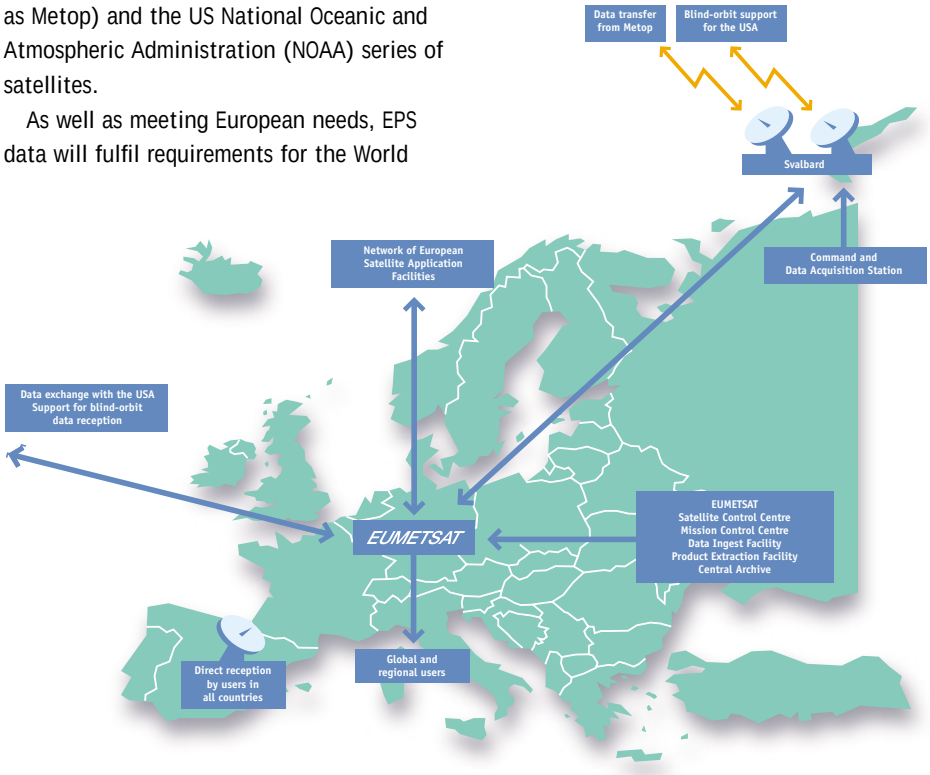
- satellite monitoring and control, mission planning
- data acquisition and processing
- product quality control
- near real-time dissemination of products.

The CGS will simultaneously handle 12 instruments, divided among the EPS (known as Metop) and the US National Oceanic and Atmospheric Administration (NOAA) series of satellites.

As well as meeting European needs, EPS data will fulfil requirements for the World Meteorological Organization (WMO) and will also provide data for global research programmes, such as the World Climate Research Programme (WCRP) and the Global Climate Observing System (GCOS).

IMAGE number 13 gave details of another vital element of the EPS ground system, the Command and Data Acquisition Station, currently being implemented on Spitsbergen (Svalbard Islands) within the Arctic Circle.

Along with the award of the contract to Starsem for the launch of Metop satellites (see page one), this marks two major milestones in the development of the EPS system.



EPS central Ground Segment and global data access

Working together for a more complete system

High level panel discussions on the need for enhanced international cooperation on low-Earth orbiting satellites took place in Woods Hole, Massachusetts, USA, on 17 October 2000.

The discussions were organised and hosted by NOAA to coincide with the 28th meeting of the Coordination Group for Meteorological Satellites.

The participants in the panel discussion included senior representatives from China, France, India, Japan, Russia and the USA in addition to EUMETSAT, ESA, IOC and the WMO.

There was unanimous agreement among those present that satellite and user organisations should work together towards the development of a more complete polar operational satellite system, with a commitment to long-term observations.

image profile

Gabriele Pawlitzek

Head of Ground Segment Division

Gabriele Pawlitzek

Gabriele Pawlitzek came to EUMETSAT armed with exactly the right credentials and experience for one of the Organisation's most challenging roles. She took up her new post as Head of EUMETSAT's Ground Segment Division last October.

A large part of Gabriele's work with EUMETSAT concerns the Office Computer Network, currently the subject of an audit. Depending on the outcome, adjustments will be made where necessary, including service level agreements and service specifications for the various computer-based services.

Moving from the European Organisation for Nuclear Research, where she was Head of the Project Support Office in the Information Technology Division, Gabriele has enjoyed an enviably successful career spanning every aspect of software engineering.

After graduating in Electrical Engineering and Computing Science at the Technical University of Munich, a nine-year period at the German Aerospace Centre (DLR) saw Gabriele's career progress from Software Engineer to senior managerial positions.

These included Quality Assurance Engineer and Group Leader in the organisation's Quality and Product Assurance Division and later, Department Head of DLR's Computer Aided Software Engineering (CASE) Service.

Gabriele takes over as EUMETSAT's Divisional Head from Mr. Robert Wolf who, after 13 years, will remain with the Organisation to concentrate on Space Frequency Coordination matters.

She is a member of the American Society for Quality (ASQ), the Institute of Electric and Electronics Engineering (IEEE) and of the Project Management Institute (PMI) where she holds the Vice Chairmanship of a Special Interest Group on Configuration Management.

When professional activities permit, Gabriele pursues a keen interest in sailing and enjoys opera, classical music and reading.

Mr. Philippe Busquin (centre), EU Commissioner for Research, meets with the EUMETSAT Policy Advisory Committee

European Commissioner visits EUMETSAT

EUMETSAT reinforced its ambition to become a major player in space activities during a visit last year to its headquarters by the European Commissioner for Research, Philippe Busquin.

During the visit in October 2000, Mr. Busquin presented his ideas on European Space Strategy and the European Commission's recent communication "Towards a European Research Area", an initiative designed to contribute to the creation of a better overall framework for research conditions in Europe.

For EUMETSAT it was an opportunity to discuss its evolving operational role in Europe for space-based observations applied to meteorology and the monitoring of the global environment, as well as confirming its wish to participate with the European Commission and ESA in the development of a European Space Strategy.

CGMS welcomes a new member

Ocean condition forecasting, coastal protection and the advancement of offshore activity are set to feature in the agenda in the coming years amongst worldwide members of the Coordination Group for Meteorological Satellites (CGMS).

At the group's annual meeting this year, the Intergovernmental Oceanographic Commission (IOC) of UNESCO is expected to become a full member.

The IOC was founded over 30 years ago and has played a pivotal role in promoting marine scientific investigation and related ocean services. In 1999, it joined forces with the WMO to form a Technical Commission for Oceanography and Meteorology (JCOMM).

This initiative is particularly timely owing to the growing involvement of CGMS in oceanographic satellite matters and EUMETSAT's consideration of a long-term programme of operational ocean observing.

All smiles for African children

Children in Kenya were bouncing for joy when EUMETSAT Training Officer, Henk Verschuur, arrived in Nairobi for a recent training course. For, aside from his work duties, tennis enthusiast Henk took with him a massive cargo of used tennis balls to hand out to children across the country.

Henk dreamt up the idea after a business trip to Niamey in Niger, where a gift of a few tennis balls to local children caused such spontaneous delight that he decided to return with a more impressive donation.

In the following months, Henk's ingenuity, charm and a lot of persuasion of his many contacts and colleagues throughout Europe resulted in a collection of 6000 balls, which were kindly transported to Nairobi free of charge by the Lufthansa airline.

On one of his recent trips, Henk helped distribute the first batch of balls to an excited group of children belonging to staff at Kenya's Meteorological Department.

As you can see from the faces of pure delight in the picture, the gift was a fantastic success.

With the remainder of the balls being distributed to schools in Kenya, Henk hopes that this small departure from the normal training activity will bring additional benefits and a large amount of pleasure to children all over the country.

Photo: H. Verschuur

Happy children in Nairobi

EUMETSAT Conference in Antalya

This year's EUMETSAT Meteorological Satellite Data Users' Conference will be held on 1-5 October 2001 in Antalya on the Mediterranean coast of Turkey. The programme will include global-scale themes covering the use of satellite data for meteorology, ocean and climate monitoring as well as natural disasters. Registration is still possible, and indeed welcome, though submissions for presentations closed at the end of February.

To register, please visit our website at www.eumetsat.de under "Announcements/ Conferences and Workshops" or for more specific details, contact us by e-mail at **conf@eumetsat.de.**

Global satellite update

Europe: *The status of the three EUMETSAT satellites remains unchanged. Meteosat-7 supports the primary service at 0° Longitude, with Meteosat-6 as the back-up spacecraft at 9°W. Meteosat-5 continues the Indian Ocean Data Coverage service from 63°E. MSG-1 is planned for launch in mid-2002 and Metop-1, the first of the EUMETSAT Polar System satellites, for late 2005.*

USA: *GOES-10 (West) is the operational satellite at 135°W. GOES-8 (East) continues to function at 75°W with no significant changes. GOES-11 (launched in May 2000) is stationed at 105°W as back-up. NOAA-15 operates in polar orbit with NOAA-12 as back-up. However, the primary imager of NOAA-15 is experiencing problems and evaluation tests are under way. NOAA-14 continues to function well as the operational afternoon spacecraft but the equator crossing time drift is impacting ozone and imagery products. NOAA-16 was successfully launched on 21 September 2000. Changes are under way to solve problems with its HIRS instrument and APT transmission so that the satellite can replace NOAA-14. NOAA-M is tentatively scheduled for launch in August 2001.*

Russia: *Two satellites of the Meteor-2 and -3 series are operated in circular orbit inclined at approximately 82°. They are operating beyond their lifetimes and with reduced capabilities. The first of the new Meteor-3M generation of polar satellite, Meteor-3M-N1, is being prepared for launch into a morning sun-synchronous orbit in the second quarter of 2001. Meteor-3M-N2 is planned for launch in 2003. The second Russian geostationary satellite, GOMS-Electro-N2, is planned for launch in 2003 and will be positioned at 76°E.*

China: *The FY-2B satellite (launched in June 2000) is located at 105°E. Good VIS, IR and WV images have been received. The FY-1C polar satellite (launched in May 1999) is operating in a morning sun-synchronous orbit. The next in the series, FY-1D, is scheduled for launch at the end of 2001.*

Japan: *GMS-5, the current operational geostationary meteorological satellite, will continue to operate at 140°E until the next generation. MTSAT-1R is planned to be launched in early 2003 and MTSAT-2 in 2004.*

India: *INSAT-1D operates at 74°E and INSAT-2E at 83°E. INSAT-2B now has an inclined orbit and is the back-up satellite. INSAT-3A and METSAT (with an imager similar to the INSAT-2E VHRR) are scheduled to be launched by the end of 2001 and INSAT-3D in 2004.*