

**WORLD METEOROLOGICAL ORGANIZATION**



**COMPOSITE OBSERVING SYSTEM FOR THE  
NORTH ATLANTIC (COSNA)**

**COORDINATING GROUP FOR COSNA (CGC)**

**FOURTEENTH AND  
FINAL SESSION**

**FUNCHAL – MADEIRA, PORTUGAL**

**27 - 29 AUGUST 2003**



**FINAL REPORT**

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## **GENERAL SUMMARY OF THE WORK OF THE SESSION**

### **1. ORGANIZATION OF THE WORK OF THE SESSION** (agenda item 1)

#### **1.1 Opening of the session** (agenda item 1.1)

1.1.1 The meeting was opened at 10.00 a.m. on Wednesday, 27 August 2003 in the Pestana Carlton Madeira Hotel in Funchal, Madeira Island, Portugal, by the chairman of CGC, Mr Magne Lystad. The list of participants is attached at the end of this report.

1.1.2 On behalf of the Portuguese Meteorological Institute and the regional government of Madeira, Mr Renato Carvalho, Director of Observations and Networks in the Institute, welcomed the participants to Funchal. He considered it very appropriate that the CGC should hold what was probably its final session on an Island in the Atlantic Ocean where observations were a vital part of the COSNA. The provision of weather services in Portugal obviously depended very much on observations in the North Atlantic and the work of the group had greatly benefited his country. The Portuguese islands of Madeira and the Azores would continue to be meteorologically very important for short range forecasting over all of Europe and as such, merited high priority for increased observational coverage. He hoped that the facilities provided for the meeting would be found satisfactory, that the meeting would be successful, and that the participants would enjoy their stay in Madeira.

1.1.3 Mr Dieter Schiessl, Director of the Department for WWW Basic Systems in the WMO Secretariat, expressed his pleasure at being able to participate in this important session of the CGC. Having the responsibility in the Secretariat for the planning and implementation of the World Weather Watch and its Global Observing System in particular, he had appreciated very much the contribution the CGC had made to the implementation of the GOS over and around the North Atlantic and had always tried to ensure that the group received the full support of the Secretariat within the limits of the available resources. He would be happy to provide any advice and assistance that might be required and wished the meeting every success.

1.1.4 In thanking Mr Schiessl, the Chairman expressed his appreciation for the support that always been provided to the group by the WMO Secretariat. The chairman thanked especially the Portuguese authorities for the invitation to hold the meeting in Funchal and for its strong participation in and contributions to the work of CGC. He was pleased to note that, in addition to the countries represented at the meeting, most of the groups dealing with the individual observing systems comprising COSNA were also present. He also appreciated the presence of the Coordinating Officer for EUMETNET, as well as the Programme Manager and Operations Manager of EUCOS. Mr Lystad recalled that the CGC had as one of its tasks the periodic review of the need for and the aims of the CGC, and, in the light of previous discussions on the future of SEG and CGC, including in particular the recommendations of the recent meeting of the Management Group, it would be for this session to decide if the planned merger of COSNA with EUCOS should now take effect and, consequently if CGC should be disbanded.

#### **1.2 Adoption of the agenda** (agenda item 1.2)

1.2.1 Arrangements were made for short presentations by the chairman on the background to the establishment of the CGC, by Mr Bruce Truscott on EUCOS Monitoring and by Mr Claude Pastre on the Status and Future of EUMETNET.

1.2.2 The agenda as adopted by the session is given in Appendix I.

## **2. REPORTS OF THE CHAIRMEN OF CGC AND SEG (agenda item 2)**

2.1 Before introducing his report, Mr Lystad briefly described the background for the establishment of CGC in 1990 to oversee the management, coordination and monitoring of the operation of COSNA. He mentioned some of the achievements in the lifetime of CGC and the lead up to the transfer of its activities to EUMETNET/EUCOS. In summary, the CGC had:

- provided a unique forum for observational network designers, observing systems operators and the users of observational data to meet and discuss common problems;
- established and conducted annually a comprehensive data monitoring and evaluation programme;
- identified a number of problem areas, such as in the transmission of ASAP reports, and proposed remedial measures;
- contributed to the development of new observing strategies and the introduction of new observing technologies;
- provided support for field experiments regarding observing systems in the North Atlantic and contributed to the initiation of EUCOS;
- contributed to studies on the impact of observing systems and networks on numerical weather prediction and organized workshops;
- ensured that COSNA was fully integrated with other elements of the regional and global World Weather Watch

2.2 Mr Lystad presented his report on the main activities of the CGC since its meeting in August 2002. He reported to the session that:

- EUMETNET had been informed by letter on the conclusions of CGC-XIII regarding the transfer of CGC activities to EUMETNET. (A reply had been received from EUMETNET with information on the decisions of the EUMETNET Council regarding the approval of the EUCOS budget for 2004).
- The Director of WWW Basic Systems in WMO had been informed of the views of CGC regarding the continuation of scientific evaluations within the framework of CBS and the agreement to allocate SFR 50,000 towards the cost of a Workshop on impact studies in 2004.
- A document on the proposed role of the SEG in the development of WWW Integrated Observing Systems had been prepared and submitted to the Extra-ordinary session of CBS in December 2002.
- Following the favourable decision of CBS, a follow-up paper had been prepared for the CBS Management Group meeting in September 2003, which would consider the detailed arrangements for the continuation of the SEG activities within the CBS infrastructure.

- Contacts had been made with WMO regarding the renewal of Mr McCombie's contract, with the EUCOS Programme Manager regarding the preparation of a report for the Management Group and with the Permanent Representative of Germany regarding the release of Mr Bernd Richter.
- Preparations had been made for the Management Group meeting which was held over two days in Geneva in March 2003
- The invitation of Portugal to host the 2003 meeting of the CGC had been formally accepted by the chairman.
- Mr Bernd Richter was again recruited to prepare the COSNA Monitoring Report for 2003.

2.3 The chairman reported that the fourteenth session of the CGC Management Group in March this year, had again discussed the future of the CGC in the light of the latest developments in EUCOS and as a result a proposal to close CGC was on the agenda for the fourteenth CGC Session.

2.4 With regard to the scientific evaluations, the Management Group had noted that the membership and terms of reference of the EUCOS Scientific Advisory Team (E-SAT) were such that the work of the SEG as far as the area of interest for European forecasts was concerned would be continued much as before. As regards the SEG activities for the coordination of impact studies on a global basis, the Extra-ordinary session of CBS in December 2002, had agreed that they would be continued within the CBS structure. The valuable work of SEG would therefore be carried on, both regionally and globally.

2.5 Dr Horst Böttger, reported that his main activities as Chairman of SEG since CGC-XIII were related to the transition of SEG work to the EUCOS Scientific Advisory Team (E-SAT).

- E-SAT had met from 9 to 10 October 2002 in Oxford. The membership encompasses all former SEG members plus experts from the EUMETNET SRNWP programme. E-SAT agreed on its Terms of Reference, which include, in particular, the support for the EUCOS Studies Programme in pursuit of the EUCOS observational components.
- He had participated in CBS-Ext.(02) as the ECMWF representative where the continuation of the scientific evaluation activities was also discussed. A satisfactory agreement for the continuation of the SEG work and for conducting future workshops on observing system impact studies had been reached. The CBS Management Group was tasked to review the working arrangements of the OPAG-IO with respect to retaining in the OPAG the tasks and expertise of the SEG.
- Preparations for the 3rd Workshop on Data Impact Studies were progressing. Dr Jean Pailleux and Dr Böttger were joint chairs supported by a Programme and local organising committee. The exposé for the workshop had been drafted together with a list of invited speakers. These had been contacted informally, the provisional programme was under review by the Programme Committee and would be finalised in the autumn. The workshop was to be held in Alpbach, Austria, from 9 to 11 March 2004.

- E-SAT had met again from 14 to 15 May 2003 at ECMWF in Reading. The EUCOS Status Report and Operations Report were presented. The development of performance targets and the re-design of the EUCOS upper-air and surface network were discussed. A large part of the meeting was reserved for discussion of the Studies Programme and the preparation of the targeted Observing System Experiment (THORPEX Observing System Test, TOST), which was scheduled to take place in the Atlantic mid-October to mid-December 2003. E-SAT members presented and discussed an impressive range of data impact studies carried out over the last year, mainly focussing on the use of high resolution satellite radiance data and new instruments such as MODIS and AIRS, but results from studies evaluating the relative merits of surface pressure versus wind observations over the oceans were also presented.
- A TOST planning meeting had been hosted by ECMWF on the day following the E-SAT meeting. Most E-SAT members were present. The science community and the operators of the observing systems for the observation targeting from both sides of the Atlantic had sketched out the main elements of the Science and Operations Plan for TOST. A follow-up meeting was planned to take place in Montreal in September 2003.

### 3. STATUS OF COSNA (agenda item 3)

#### 3.1 Consolidated status report (agenda item 3.1)

3.1.1 The meeting noted with appreciation the consolidated status report on the COSNA prepared by Mr Bernd Richter, which reviewed the functional performance of the various operational components of the system. The report (see Annex II) had been compiled from selected information given in the reports of the monitoring centres of Météo-France, UK Met Office, KNMI E-AMDAR QEV Centre and ECMWF, so that deficiencies could be identified, long-term trends detected and appropriate action taken. The CGC expressed its appreciation to these Centres, including the former UK Met Office ASDAR Centre, for the continued availability of monitoring information.

3.1.2 It was noted that observational data available from the North Atlantic area continued to be generally of high quality. Data availability is, however, variable because of occasional operational and/or telecommunication problems and the natural variability of mobile platforms such as ships and aircraft actually operating in the region. The most noteworthy results of the review were:

- **GENERAL** The observational data in the COSNA-Area continue to be of high quality with respect to availability, quality and timeliness.
- **SYNOP SHIP VOS** The data quality of SYNOP SHIP continues to be at a high level with less than 1 % listed in the suspect station list. (It was noted, however, that EUCOS and EGOS statistics indicate that a significant percentage of pressure data for manned VOS ships is suspect).
- **DRIFTING BUOYS**
  - The number of drifting buoys in the North Atlantic recovered and stabilised in 2002 at around 70, 26 of which are north of 50 North and 48 south of this parallel.

- The data availability of drifting buoys in terms of MSL pressure reports per buoy per day shows minor fluctuations, but no negative trend. The data timeliness improved with more than 90 % of all buoys reporting as "good" or better.

- **E-AMDAR**

- The number of E-AMDAR reports shows impressive development, reaching numbers that are not governed by availability, but by meteorological requirements with a highly sophisticated optimisation system providing selective data availability. This holds also for profiles (albeit without humidity), about 700 of which are available for most major European airports with a typical frequency of one profile per 3 hours (in Germany one per hour).

- The fleet of E-AMDAR equipped aircraft increased to a number of 450 and is to a high degree fulfilling meteorological requirements. Minor problems are still the number of profiles between 00Z and 05Z and some data sparse areas in northern Siberia and over some Oceanic areas.

- The data quality of E-AMDAR reports is very good and there are no significant anomalies observed.

- **ASAP TEMP**

- There are still differences in the number of TEMP reports given by the operators as available on GTS and those actually received at ECMWF . Performing worse than average are OXYH2 (54%), SWJS (52%), WPKD (39%) and OVYA2 (29%), Performing better than average EHOA, ZCBP6, FNPH, FNOR, FNOU, ELML7.

- **ASAP TEMP SHIP WIND:** There was a significant improvement in the data availability of TEMP SHIP WIND reports compared to the number of TEMP SHIP GEOP reports from 85 % in 2001 to 95 % in 2002.  
TOP performing at 100 %: OWS Mike / LDWR  
Improved, now better than average: DBLK, OXTS2, OXYH2  
Improved, but still worse than average: FNRS, FNPH, FNOU, OVYA2  
Deteriorated, worse than average: WPKD, ZCBP6

- **ASAP TEMP GEOP TOP LEVEL:** The percentage of radiosondes reporting geopotential at pressure level of 50 hPa decreased from 77 % in 2001 to 71% in 2002. This deterioration is mainly due to FNOU(-46%),FNRS(-39%), FNOR(-22%), FNPH(-4%), ELML7 (-3%). These ships seem to have a problem with the premature bursting of the balloon as they do not reach 50 hPa for both geopotential and wind reports. Improvements are shown by OXTS2 (+33%) and OXYH2 (+16%).

- **ASAP TEMP WIND TOP LEVEL:** The percentage of radiosondes reporting wind at pressure level 50 hPa deteriorated from 75 % in 2001 to 66 % in 2002. While the above mentioned ships do not reach the level due to an early burst of the balloon, OXTS2, OXYH2 and OVYA2 seem to have a problem with the wind system at high levels:  
OXTS2: Geop@50hPa: 78%, Wind@50hPa: 54%;  
OXYH2: Geop@50hPa: 89%, Wind@50hPa: 74%  
OVYA2: Geop@50hPa: 77%, Wind@50hPa: 58%

- **TEMP LAND:** The radiosonde land stations around the COSNA area are operating at a high level with respect to data availability and data quality with only a few problems at individual stations:  
44 % of the soundings of 08508 do not have any wind report.  
34 % of the soundings of 03953 report do not report geopotential and wind at 50 hPa This indicates an early balloon burst problem.  
35 % of all soundings of 08001 do not report wind at 50 hPa and 18 % of all soundings do not report geopotential at 50 hPa indicating a mixed problem of early balloon burst and wind finding system.

3.1.3 Noting that the Ocean Weather Ship Mike continued to operate satisfactorily and provide valuable data, the CGC expressed its appreciation to Norway, the operating country, as well as to Germany and the Netherlands, which were providing financial support. The continued operation of Ekofisk, the observing platform in the North Sea, also operated by Norway, with the financial support of the countries bordering the North Sea, was also noted with satisfaction. It was noted that since the beginning of 2003 the support provided by individual countries was progressively being replaced by support from EUMETNET which, by the year 2006, would be funding the entire costs of consumables for station Mike and the full running costs of Ekofisk as part of the E-ASAP programme.

3.1.4 In concluding its discussion on monitoring the operation of the system, the CGC emphasized the importance of standardizing monitoring procedures at the various NWP and operations centres. Experience had shown that, on occasions, results were not comparable, as the centres were not always monitoring the same observation quantities in the same way making it difficult to obtain a consistent picture of the operation of the entire system.

## **3.2 Additional reports on system components (agenda item 3.2)**

### **ASAP**

3.2.1 The Chairman of the ASAP Panel, Mr Jean-Louis Gaumet, reported on ASAP activities in the past year. The number of soundings made in the year 2002 was 5,150 which was somewhat below both the figure for 2001 and the average for previous years. This was due mainly to the soundings from the German Polar Research vessel (342) no longer being included (as it is not incorporated in E-ASAP) and to INMARSAT transmission problems encountered by Spain. The 21 ASAP units in 2002 were operated by: Denmark (3 units), EUMETNET (2 units), France (4 units), Germany (2 units), Japan (6 units), Spain (1 unit), Sweden-Iceland (1 unit), United Kingdom (1 unit) and WRAP (Worldwide Recurring ASAP Programme) (1 unit).

3.2.2 It was noted that the performance of ASAP soundings with respect to height had deteriorated very slightly with a decrease of around 1 km in the average terminal sounding height. A rapid examination of ASAP data over the past ten years had in fact shown a slow gradual decrease generally. EUCOS monitoring had observed the same tendency. The Chairman of the ASAP Panel had communicated these findings to the operators but most did not accept that there had been a decrease in performance. It was noted that in terms of quality observations from ASAP units are comparable with those of land stations. It was agreed that in order to have a complete and consistent picture of ASAP monitoring it was necessary to re-examine the indicators and criteria used and it was hoped that this could be done under the new EUCOS framework.

3.2.3 Other points noted were that the communication efficiency of the German ships had improved, probably because of the change from EUMETSAT to INMARSAT; the geographical distribution of ASAP soundings had remained almost unchanged with the large majority being located over the North Atlantic; on French ships ASAP operation had been transferred from meteorological personnel to ships' crew and GPS-2D sondes had been replaced with GPS-3D sondes to improve wind measurements. Finally, the CGC urged operators to make representations to the relevant local authorities for the continuation of the (much cheaper) LORAN C ground-based navigation service. The following changes in the operational programme were noted:

- The Peljasper/SWJS operating in the Mediterranean Sea was sold. The Eumetnet ASAP container has been transferred to Sealand Performance/ KRPD and will start operation on the North Atlantic route between Europe and the Gulf of Mexico in August 2003.

- The Lagarfoss/V2XO was sold in August 2002. The ASAP container was transferred to Skogafoss/V2XM, which continues operations on the same route.

- E-ASAP ship Sealand Developer / KHRH started operation on the North Atlantic route between Europe and the Gulf of Mexico on 30 May 2003

- E-ASAP ship Sealand Motivator / WAAH was scheduled to start operating on the North Atlantic route between Europe and the Gulf of Mexico on 7 November 2003

3.2.4 Finally, it was noted that the EUMETNET E-ASAP programme was making good progress and continuing to expand with most national ASAP activities being gradually integrated with E-ASAP. The management of the programme was now with the DWD and it was planned to increase the fleet to 18 ships providing 6,300 ascents per annum.

## **EGOS**

3.2.5 Mr Hreinn Hjartarson (Iceland) introduced the intersessional report of EGOS. He reminded the meeting that EGOS - the European Group on Ocean Stations - was an action group of the Data Buoy Cooperation Panel and that its membership comprised representatives of Denmark, France, Germany, Iceland, Ireland, the Netherlands, Norway, Spain, Sweden and the United Kingdom. EGOS had for several years been the biggest producer of meteorological observations from the North-Atlantic. Operating both moored and drifting buoys and reporting on GTS, the group had established a network of hourly observations in near real time from coastal waters as well as from the high seas. Through intensive quality monitoring of data the group has been able to instruct and help producers to make the buoys more effective and reliable. The cost per observation was getting lower and the lifetime of buoys was increasing.

3.2.6 The oceanographic aspects of the buoy programme were also of importance for air-sea interaction studies. Sea surface temperature, drifting patterns and wave measurements together with air pressure, wind measurements and air temperature give valuable data to forecasters and modellers of the weather and also to modellers of the oceans.

3.2.7 On 1 August 2003, 47 operational EGOS drifting buoys were reporting at least air pressure in the EGOS area (30°-65°N, east of 50°W). Sixty-four buoys were deployed in the period Aug 2002 – Jul 2003; of these 10 were deployed on behalf of EUCOS/OSE. Seventeen moored buoys were operational on August 1 but K5 was adrift close to Iceland. It was noted that recently two other buoys had been deliberately cut from their moorings and may not be operational again for some time. As EGOS members are also members of

EUCOS which has now an operational marine component, it was assumed that most of EGOS functions would be taken over by EUCOS in near future.

## **AMDAR**

3.2.8 The Technical Co-ordinator of the AMDAR Panel, Mr Jeff Stickland presented a report on the current status of the WMO AMDAR Panel and its programmes. He noted that the past year had seen a consolidation of existing AMDAR data producing programmes and in some cases, a major change in programme management. There was continuing interest around the world in a range of countries to develop national and regional AMDAR programmes; significant progress in this regard had been made in Argentina, Canada, Chile, Japan, Republic of Korea and Saudi Arabia. Other countries, including Brazil, Morocco, Oman and the United Arab Emirates, had taken the first steps in planning and implementing new programmes. Of special interest was the commencement of the first collaborative targeted programme in a large data sparse area of the world over Central and West Africa.

3.2.9 It was noted that specialised systems and forecasts based entirely on AMDAR data continued to be developed and tested. Global data quality monitoring systems continue to verify the high quality of AMDAR data being exchanged on the GTS for operational use. The AMDAR Reference Manual had been published, new regional bulletins for the exchange of data had been introduced to simplify data processing by those countries with limited computer resources. Extensions to the binary codes for the exchange of data also had been developed that would become operational in November 2003. and work on improvements in onboard software was continuing. Sensor development was continuing and significant progress had been achieved in the development of alternative AMDAR systems for smaller aircraft. A note of caution had arisen from the first attempts to implement AMDAR on some smaller regional aircraft because of inappropriate exposure of temperature sensors. Data optimisation systems were continuing to improve and had proven to be a valuable tool in obtaining a desired level of data coverage and controlling operational costs. Efforts to better integrate AMDAR data into the WMO Global observing System had increased through the involvement of WMO Congress and the Executive Council following initiatives of CBS and CAeM.

## **Satellites**

3.2.10 The representative of EUMETSAT, Mr Sean Burns, informed the meeting of the current status of the operational satellite system. He reported that Meteosat-7 continued to support the 0° prime service and Meteosat-5 was still at 63°E, supporting the IODC (Indian Ocean Data Coverage) service. Meteosat-6 had been relocated from 10°W to 10°E, to allow the commissioning of MSG-1 to be performed at 10°W. From its new location, Meteosat-6 continued to support the Rapid Scanning Service (RSS) with ten-minute scans covering the approximate latitude range of 10-70°N. In addition to being available via the Internet, RSS data were also available to registered users via EUMETCast - a low cost Digital Video Broadcast (DVB) satellite data distribution system.

3.2.11 The EUMETSAT ATOVS Retransmission Service (EARS) had started operations on 12 November 2002 and included data from three HRPT stations. The service provides the Meteorological Community with satellite datasets from the US National Oceanic and Atmospheric Administration (NOAA) polar-orbiting satellites covering data-sparse sea areas around Europe. The aim was to provide ATOVS level 1a and 1c data with a timeliness of 30 minutes to cover the needs of EUMETSAT Member States' Regional NWP operators for NOAA sounder data. In addition to the primary distribution on the DVB-based multicast, the EARS products were made available for distribution on the GTS starting 12 February 2003.

3.2.12 Current HRPT receiving stations were: Kangerlussuaq - Greenland, Tromsø Satellite Station - Norway and Maspalomas, Spain. HRPT stations in Canada, USA and Greece would come on-line in the second half of 2003 bringing the total to ten.

3.2.13 As regards future geostationary meteorological satellite systems, the MSG-1 (Meteosat Second Generation) satellite was successfully launched on the 27th August 2002. The commissioning of the MSG system was continuing and the routine operations phase was scheduled to start at the end of 2003. A failure of one of the on-board Solid State Power Amplifiers used for dissemination has led to the implementation of HRIT and LRIT using EUMETCast. MSG-1 image data and MDD data is currently being disseminated via EUMETCast. Meteorological products, Foreign Satellite data and DCP messages will be added to EUMETCast during the second half of 2003.

3.2.14 The Launch of the first European Polar System (EPS) satellites, METOP 1 was scheduled for October 2005.

### **National Activities**

3.2.15 Mr Carvalho gave a brief report on the status of surface and upper-air observations in Portugal with particular reference to the Azores and Madeira. Problems associated with lack of funds for consumables for upper-air soundings and with staffing at surface stations were noted. Some support was, however, being provided by EUMETNET for stations in the Atlantic.

## **4. STATUS OF EUCOS (agenda item 4))**

### **4.1 Operational systems, including monitoring (agenda item 4.1)**

4.1.1 Dr Jim Caughey (UK Met Office), the EUCOS Programme Manager, described the present status of EUCOS with particular reference to the "conditions" set by the CGC for the transfer of its activities to EUMETNET. He recalled that at its thirteenth session in 2002 the CGC had agreed that these conditions were already then well on the way to being met and outlined the latest position as follows:

#### **(a) EUCOS becomes an operational system**

4.1.2 The EUCOS operational programme commenced in January 2002 and operational monitoring started on 1 January 2003. Daily performance statistics for each EUCOS component are available on the EUCOS website and are used to perform daily assessments of network performance.

4.1.3 A process had been introduced to manage the risks associated with changes to the network (station closures, moves or the introduction of new observing practices). Participants were required to inform EUCOS staff of any plans that may affect network performance, giving sufficient notice so that all participants could be informed and appropriate actions taken to minimise impact.

#### **(b) Satisfactory arrangements are made for the marine component of EUCOS**

4.1.4 The management of the E-ASAP programme has been transferred to DWD. A surface marine programme, E-SURFMAR, commenced on 1 April 2003 (involving the start of GNI funding for these activities). This would help stabilise the funding for drifting buoy

deployments and moored buoys in the Atlantic and strengthen links with EGOS. It would also provide co-ordination for European VOS ships. Fifteen countries had decided to participate in the Programme which would be managed by Météo-France. The initial phase would involve a design study to ascertain the optimum network of surface marine observations in relation to other available data followed by an implementation phase as resources allow.

**(c) Adequate provision is made for monitoring the entire system**

4.1.5 EUCOS had established a data monitoring system, which measured the performance of each EUCOS component against agreed performance standards. The standards were based on WMO recommendations (within the threshold/optimum band) and had been agreed by the EUCOS Scientific Team and PB-OBS. They focussed on data availability, timeliness and quality. The system made use of new EUCOS statistics generated specifically for this purpose together with existing output from other Data Monitoring Centres, the objective being to minimise duplication.

4.1.6 Whilst results were made available to Participants using the EUCOS Website, they were primarily used by EUCOS operations staff to provide a network monitoring service:

- Identifying, on a daily basis, operational problems requiring corrective action according to the EUCOS fault correction process
- Recording statistics for quarterly network performance reports
- Conducting analysis of longer-term trends, similar to the work currently carried out by COSNA.

4.1.7 The CGC noted with much interest the sample monitoring report (Ref EUCOS//104) presented to the meeting by Mr Bruce Truscott, EUCOS operations manager. In providing an overview of the availability and quality of observations within EUCOS, the report demonstrated the capability to continue the monitoring function of CGC.

**(d) arrangements are made for scientific evaluations to be continued under the aegis of WMO/CBS-CAS and/or EUCOS**  
(See agenda item 4.2 below)

**(e) close contacts and co-ordination are assured between EUMETNET/EUCOS and other bodies**

4.1.8 It was noted that within EUCOS, Technical Co-ordination Committees were established to guide the work in specific areas. Representatives from relevant WMO groups (e.g. AMDAR Panel/ASAP Panel) were members of these groups. Close co-ordination was maintained by EUMETNET/EUCOS and other WMO bodies e.g. RA VI, CBS and expert teams such as that considering the re-design of the GOS. EUCOS was to present a paper at the next meeting of the RA VI Working Group on Implementation of the WWW in Offenbach in October 2003. Thus, every effort was made to ensure that EUCOS as a regional component of the WMO GOS, offers an optimised contribution that links effectively with global plans. To help secure this, significant EUCOS resources (10-20%) are devoted directly to WMO programmes outside the immediate EUCOS area of interest for NWP on the 1-3 day time scale.

4.1.9 It was also noted that links had been established with other regional (MEDEX) and global (THORPEX) initiatives. In the former, EUCOS was providing modest financial support in return for advice concerning future observing strategies for the Mediterranean area.

### Other Aspects

4.1.10 Dr Caughey also reported briefly on other aspects of the operational programme. On 1 January 2003 responsibility for the AMDAR programme was transferred to SMHI. This work was continuing according to schedule and within budget. Council has approved the 2004 EUCOS budget and accepted the Programme Managers budget outlooks for 2005/6. The funds for E-SURFMAR are included within revised EUCOS budgets.

4.1.11 The EUMETNET Council also approved proposals by the Programme Manager to revise the EUCOS Upper Air Network to include GPS, profilers and doppler radar sites. This will be done in close liaison with the relevant bodies. It was also agreed that the Programme Manager should invite collaboration with EUCOS by the 10 new EU States. A visit has been made to Hungary and co-operation established. It is hoped that, in due time, the new EU States may become full members of EUMETNET.

## 4.2 Studies Programme (agenda item 4.2)

4.2.1 Dr Caughey reported that EUCOS contains an active studies programme to define the optimal evolution of the network components. This included OSEs and technology demonstrations. The studies programme is developed by the EUCOS-Scientific Advisory Team (EUCOS-SAT). This group, chaired by ECMWF met in Oxford in October 2002 and May 2003. It contains representatives of the main NWP centres in Europe. The May meeting effectively replaced the COSNA-SEG meeting in 2003 (following the decision by CGC that it would not hold a SEG meeting in 2003).

4.2.2 It was noted that the 2003 Studies programme (EUCOS/SP/100/1) contained a range of OSEs, technology demonstrations and network studies. Three OSEs were being given priority

(a) **AMDAR** - this trial (Ref: EUCOS/PRG/014) started a first phase 6 week Special Operating Period (SOP) on 5 March. Sampling rate increased from a nominal 3 hourly to ½-1 hourly. The number of observations over Europe doubled to nearly 40,000 per day. A second 6-week SOP is planned for late summer. Several NWP centres including ECMWF will conduct impact assessments.

(b) **Marine** - the excellent co-operation with EGOS is fundamental to the success of this OSE. EGOS has voluntarily contributed an additional 10 drifting buoys to climatologically sensitive areas identified by EUCOS. Together with 10 buoys funded by EUCOS, a total of 20 additional buoys are expected in the sensitive areas by the end of 2003. This work should help in the design stage of E-SURFMAR.

(c) **Targeted** - scheduled for Oct.-Dec. 2003, this OSE is proceeding in conjunction with THORPEX and is referred to as the Atlantic TOST (THORPEX Observing System TEST) organised by EUCOS. NWP Centres (ECMWF, NCEP, Météo France and the Met Office) will provide real time predictions of sensitive areas. EUCOS will then arrange for targeting of these areas by European, US and Canadian observational assets including: ASAP ships, AMDAR aircraft, additional radiosonde ascents, research aircraft (DLR, NOAA, NASA, Canadian, etc.), driftsonde flights across the Atlantic, and Meteosat 6 and GOES rapid scan winds.

4.2.3 A number of NWP centres in Europe and North America have volunteered to assess the impact on forecast quality of the targeted data.

4.2.4 It was noted that EUCOS is also studying closer links between the future space and terrestrial observing systems to ultimately develop a truly integrated and optimised system. This work is proceeding in co-operation with ECMWF and EUMETSAT.

4.2.5 Recalling that CBS had noted that periodic workshops would be convened (at 2-3 year intervals) devoted to OSEs, impact assessments etc., the CGC agreed that the combination of regular (at least annual) E-SAT meetings plus CBS workshops provide effective mechanisms to continue the activities undertaken by the SEG.

4.2.6 In conclusion, it was noted that EUCOS had continued to develop as planned. It offered a new, more secure (GNI) basis of funding for critical elements of the observing networks (including the marine component) whilst improving significantly upon monitoring, quality control and fault rectification. In addition, it provided a framework for optimising the whole system and ensuring the most effective link to the space segment.

#### **4.3 New Observing systems (agenda item 4.3)**

4.3.1 Dr Caughey briefly outlined activities related to the development of new technology. It was noted that tests of driftsonde (stratospheric balloon carrying a gondola of 20 dropsondes that can be released as desired) will be carried out during the THORPEX North Atlantic Observing Campaign. The TAMDAR technology which may generate useful humidity measurements in the lower troposphere is planned to be tested in conjunction with Météo-France and AMDAR humidity sensors in conjunction with DWD. The latter would significantly extend the usefulness of data from civil aircraft if successful.

#### **EUMETNET**

4.3.2 To conclude the discussion on this item, Mr Claude Pastre, Coordinating Officer of EUMETNET gave a short presentation on the overall status and future of EUMETNET. He briefly reviewed the ongoing programmes and those planned for the immediate future with indication of the financial resources likely to be available and how they were allocated. He emphasised that EUMETNET was and would remain a **network** of Meteorological Services acting collectively rather a single entity or organization such as, for instance, EUMETSAT or WMO.

4.3.3 As CGC and COSNA were coming to a close and he himself was soon to retire, he wished to record with great appreciation the contribution that the CGC, and especially its former chairman Mr Stefan Mildner, had made in the mid 1990s to the initiation of EUCOS. Following the establishment of EUMETNET in 1996 the CGC had had the foresight to make available funds for what became known as the "Singleton study" which led to the establishment of EUCOS in which COSNA would eventually be incorporated – a vision which had now become a reality.

## **5. FUTURE OF CGC AND SEG** (agenda item 5)

### **5.1 COSNA Activities** (agenda item 5.1)

5.1.1 The meeting recalled that the CGC had been established in 1990 to oversee the operational implementation and development of COSNA (Composite Observing System for the North Atlantic). Its responsibilities in this regard had been successfully carried out mainly through annual meetings of the CGC, which considered the results of the annual monitoring exercise as well as reports on the operation of the individual observing systems and made recommendations for any corrective measures and improvements. The CGC and its Management Group had also considered the CGC participation in, and results of, special observing studies and experiments relevant to COSNA.

5.1.2 With the establishment of EUMETNET (The Network of European Meteorological Services) in the 1990s and the subsequent planning and development of a EUMETNET Composite Observing System (EUCOS), the CGC recognised in 1998 that at some time in the near future COSNA should be subsumed in EUCOS and that the activities of CGC should in time be undertaken by an appropriate mechanism within EUMETNET. At its eleventh session in the year 2000 the CGC had agreed that COSNA should, for the time being, remain an independent entity and that CGC should continue to exist with unchanged terms of reference until such time as (*inter alia*):

- (a) EUCOS becomes an operational system;
- (b) satisfactory arrangements are made for the marine component of EUCOS;
- (c) adequate provision is made for the monitoring of the entire system;

5.1.3 At its subsequent annual meetings, the CGC received detailed reports on the progress being made in EUCOS, particularly as regards the development of an organizational structure for the management of the marine component and the implementation of procedures for the monitoring of the entire system. At its session in 2002, the CGC agreed that the conditions it had set for the transfer of activities to EUMETNET were well on the way to being met, and that matters were on course for a final decision on the transfer to be taken at its session in August 2003. The Management Group, at its meeting in Spring 2003 had further reviewed the situation, as well as relevant decisions of the EUMETNET Council, and had recommended that COSNA now be considered as fully incorporated in EUCOS and that CGC transfer its activities forthwith to EUMETNET.

5.1.4 In the light of this recommendation and the most recent report on the status of EUCOS particularly as regards the arrangements being made for the development and management of the marine component, which includes the North Atlantic, and for the monitoring of the entire observing system, the CGC unanimously agreed that its activities were now being carried out satisfactorily by EUCOS and that it was unnecessary for COSNA to exist as a separate entity. Consequently, after the current session, there would no longer be a need for the CGC to oversee the COSNA management, coordination and monitoring, the main reasons for which it had been established in 1990.

### **5.2 Scientific Evaluations** (agenda item 5.2)

5.2.1 It was recalled that the establishment of the Scientific Evaluation Group for COSNA as a major part of the infrastructure of the OWSE-North Atlantic predated the formation of the

CGC. Its role then had been to monitor and evaluate all the observing systems relevant to COSNA in the context of Numerical Weather Prediction. This was, and still is, carried out by testing the impact of particular observing systems on operational NWP systems or through design studies and network studies. As operational NWP models are generally hemispheric or global, and the results of impact studies applicable also in areas outside the North Atlantic, the work of the SEG became global in nature with a membership representing all the major European NWP centres and the NCEP of the USA on the other side of the Atlantic.

5.2.2 In carrying out this work the SEG had maintained close coordination with other groups concerned with the development of observing networks and systems such as the relevant working groups of the WMO/CBS, and the North American Atmospheric Observing System. At an early stage, in its consideration of the transfer of activities to EUMETNET, the CGC had also recognized that in the wider context of WMO there was a continuing requirement for a scientific evaluation team to review global and regional OSE and OSSE studies undertaken by NWP centres in order to support the development of the World Weather Watch Global Observing System. Hence, the conditions set by CGC for the transfer of activities had included the proviso that: "Arrangements are made for scientific evaluations to be continued under the aegis of WMO/CBS-CAS and/or EUCOS" and that "close contacts and coordination are assured between EUMETNET/EUCOS and other bodies dealing with observing systems and networks."

5.2.3 In reviewing the current situation, the CGC noted with satisfaction that the membership and terms of reference of the EUCOS Scientific Advisory Team (E-SAT) were such that the work of the SEG as far as the area of interest for European forecasts was concerned would be continued much as before. As regards the SEG activities for the coordination of impact studies on a global basis, the Extra-ordinary session of CBS in December 2002, had agreed that they would be continued within the CBS structure. The CGC concluded therefore that arrangements were in place for the valuable work of SEG to be carried on, both regionally and globally. Noting also that links had been established between EUCOS and other study initiatives such as THORPEX as well as with other WMO bodies within Regional Association VI and CBS it was agreed that everything possible was being done to assure the continuation of this aspect of CGC activities.

### **5.3 COSNA Trust Fund (agenda item 5.3)**

5.3.1 The meeting recalled that the Trust Fund had been required initially to assist in the administrative support costs of the annual meetings of the CGC, its Management Group and the SEG. By decision of the CGC itself, the Fund had also used to pay for occasional consultancies to conduct studies for the CGC, to contribute to experiments which were relevant to COSNA and, lately, to partially fund workshops on Impact Studies. Eight countries had contributed regularly to the fund in varying amounts.

5.3.2 Noting that a sum of about SFR 230,000 was likely to remain in the Fund at the closure of CGC, the session agreed with the recommendation of the Management Group that SFR 60,000 be set aside for a third WMO/CBS Workshop on Impact Studies in 2004 and confirmed its earlier agreement that the remaining funds (approximately SFR 170,000) be transferred to EUMETNET/EUCOS to support studies related to the development of the marine component.

5.3.3 Noting that expenditures in the current year were expected to be some SFR 45,800 the meeting accepted the statement of revenue and expenditure as given in Annex IV.

#### **5.4 Decision on the Closure of CGC (agenda item 5.4)**

5.4.1 Taking into account the recommendations of the CGC Management Group (March 2003) and the most recent report on the status of EUCOS (August 2003),

##### **The CGC noted in particular that:**

- (a) EUCOS was an operational system,
- (b) satisfactory arrangements had been made for the marine component of EUCOS,
- (c) adequate provision had been made for the monitoring of the entire system,
- (d) arrangements had been made for the scientific evaluations to be continued under the aegis of CBS and EUCOS,
- (e) close contacts were assured between EUMETNET/EUCOS and other bodies, dealing with observing systems and networks

##### **The CGC concluded that:**

- (a) COSNA had already been incorporated in EUCOS and need no longer exist as a separate entity,
- (b) adequate arrangements and infrastructure were in place for the future management of the marine component of EUCOS,
- (c) there was no longer a need for CGC to oversee the COSNA management, coordination and monitoring, the main reasons for its existence.

**The CGC therefore decided that the current session be its last and that the group be dissolved soon thereafter when the administrative and financial formalities had been completed.**

##### **CGC further decided that:**

The COSNA Trust Fund be closed and that the balance be disposed of as follow:

- (a) SFR 60,000 to be contributed towards the cost of the next workshop on Impact Studies (Spring 2004),
- (b) the remaining balance (approximately SFR 170,000) to be transferred to EUMETNET to be used specifically for the development of the marine component of EUCOS with a particular focus on the North Atlantic Ocean.

The chairman of the CGC was requested to notify EUMETNET of these decisions.

The Secretary-General was invited to notify all Members of RA VI as well as other interested Members accordingly.

The chairman of the CGC was authorised to approve the final accounts of the Trust Fund as soon as all financial obligations had been met and, through the Secretary General, to provide contributing Members with a closing statement of account.

5.4.2 The CGC expressed its great appreciation for the support it had received throughout its existence from the WMO Secretariat, particularly in managing the Trust Fund and providing administrative and technical support for meetings of CGC and SEG. The CGC also recognized with appreciation the contribution made to the work of the group by the NWSs of Canada and USA, especially in its earlier stages. The contributions of a number of other international organizations and groups were also noted with appreciation; these included ECMWF, EUMETSAT, EUMETNET, DCBP, EGOS, AMDAR Panel, and the ASAP Panel

## **6. OTHER BUSINESS** (agenda item 6)

6.1 Under this item, Mr Gerhard Mueller briefed the session on the "Earth Observation Summit" which had taken place in Washington, USA, in late July 2003. A ministerial level meeting held at the initiative of the Evian G8 meeting, it had been attended by a few ministers and also representatives of some large National Meteorological Services. Full details were available at the website: [www.earthobservationsummit.gov](http://www.earthobservationsummit.gov)

## **7. CLOSURE OF THE MEETING** (agenda item 7)

7.1 In the absence of the chairman, the vice-chairman of CGC, Mr Gerhard Steinhorst, thanked the participants for their contributions to what had been a very successful meeting. He also thanked the Portuguese authorities for providing such a pleasant location for the meeting and for their hospitality.

7.2 He felt a certain degree of sadness that CGC had come to its end but was confident that it had taken the correct decision to hand over its responsibilities to EUMETNET where COSNA would be in safe hands. He expressed his thanks to the many experts and representatives who had participated in the work of CGC over the years, especially its chairmen Messrs Mohr, Mildner and Lystad and to Mr Richter for his work in preparing the annual monitoring reports. He considered that CGC should be proud of its work in making a significant contribution to improving the forecasts in the European region.

7.3 The meeting closed at noon on Friday, 29 August 2003.

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**COMPOSITE OBSERVING SYSTEM FOR THE NORTH ATLANTIC (COSNA)**

**COORDINATION GROUP FOR THE COSNA (CGC)  
FOURTEENTH SESSION (CGC-XIV)**

**(Funchal, Portugal, 27-29 August 2003)**

**AGENDA**

- 1. ORGANIZATION OF THE MEETING**
    - 1.1 Opening
    - 1.2 Adoption of the agenda
  - 2. REPORTS BY THE CHAIRMEN OF CGC AND SEG**
  - 3. STATUS OF COSNA**
    - 3.1 Consolidated status report
    - 3.2 Additional reports on system components
  - 4. STATUS OF EUCOS**
    - 4.1 Operational systems, including monitoring
    - 4.2 Studies Programme
    - 4.3 New Observing Systems
  - 5. CLOSURE OF CGC**
    - 5.1 COSNA activities
    - 5.2 Scientific evaluations
    - 5.3 The COSNA Trust Fund
    - 5.4 Decision on the closure of CGC
  - 6. ANY OTHER BUSINESS**
  - 7. CLOSURE OF THE MEETING**
-

**Consolidated Monitoring Report**  
**on COSNA - Components**  
**2003**

This report may be found at: <http://www.wmo.ch/web/www/reports.html>

**World Meteorological Organization**  
**Coordination Group on COSNA**  
**Interim Statement of Account as at 21 August 2003**

	<u>SFR</u>	<u>SFR</u>
Balance of Fund at 1 January 2002	219,803	
Contributions	69,665	
Interest Income	<u>5,034</u>	
Total revenue		294,502
Obligations incurred		
Coordination Group for COSNA 12th Session	11	
Coordination Management COSNA Mar 2002	11,790	
Coordination Group for COSNA 13th Session	16,464	
Coordination Management COSNA Mar 2003	7,241	
Coordination Group for COSNA 14th Session	23,200	
Consultants	39,408	
Consultants - Credit from Prior Years' (EUCOS obligation cancelled)	(46,192)	
Mission Travel - - ticket, per diem, other (non WMO staff)	16,942	
Offset costs	<u>1,040</u>	<u>69,904</u>
Balance of Fund at 21 August 2003	SFR	<u><u>224,598</u></u>

Represented by:

Cash at Bank		275,909
Less: Prior Year Obligations	3,476	
Current Year Unliquidated Obligations	47,835	
Accounts Payable	<u>-</u>	<u>51,311</u>
	SFR	<u><u>224,598</u></u>

***Contributions received (in SFR) in 2002***

	<u>Total</u>
Germany	22,651
Iceland	500
Netherlands	7,000
Norway	9,000
Portugal	1,500
Sweden	6,800
Switzerland	10,000
United Kingdom	<u>12,214</u>
Total	<u><u>69,665</u></u>

**COORDINATION GROUP FOR COSNA (CGC)**  
**Fourteenth session**  
**Funchal (Madeira Island), Portugal, 27-29 August 2003**

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