

THE ROAD TO RESOLUTION 40 AND BEYOND

(Evolution of International Atmospheric Data Exchange)

INTRODUCTION

For nearly a century and a half nations of the world have cooperated in the free and unrestricted international exchange of atmospheric data and services, particularly that information observed or derived in support of daily operational weather warnings and forecasts. In the late 1980's some nations, feeling the threat to sustain their National Meteorological Services from possible reductions in traditional government funding embarked upon an accelerated commercial activity in order to derive new sources of funding. This step, largely from Western Europe raised many questions regarding such issues as: (1) the role of Government in providing Weather and Climate Services and the corollary of the role of the private sector; (2) the relationship of private sector and government provided services in other countries; and (3) the contribution of resources to sustaining the major global infrastructure of observations and numerical model output particularly from the private sector. The confluence of these issues as well as the continuing lack of national support for atmospheric science in most developing countries led to a contentious series of events that resulted in the adoption of "Resolution 40" at the Twelfth WMO Congress in May of 1995. Resolution 40 might be considered an agreement of "what is not unacceptable". The opposite to this double negative is "that it is acceptable". In order to adopt Res. 40 there was a need for considerable ambiguity. Members of WMO wanted to leave considerable interpretation to each individual nation. Nevertheless, Res. 40 has become a new standard for how Atmospheric Science and Services will be pursued at the global level for the foreseeable future. This case study will seek to describe the evolution of Res. 40 through the eyes of Decision Makers, principally in the USA as well as raise the many complex issues considered in this process. There were several key meetings of the WMO Bureau, Executive Council, EC Working Group on Commercialization, and the Congress that will be described in detail. During this process, the major Decision Makers within WMO were John Zillman (Australia), Joe Friday and Dick Hallgren (USA), John Houghton and Julian Hunt (UK), and Andre Lebeau and J-P Beysson (France). These people controlled the agenda, However, others did contribute to the process. Finally the case will speculate on how Decision Makers might be considering the future impact resulting from the Resolution. For most of the contentious years (1989 – 1995) in developing Resolution 40, "Joe" Friday was the Permanent Representative with the WMO from the USA. In this capacity he represented all government agencies and the private sector in the USA positions to the WMO. Similarly, his predecessor, Richard Hallgren as well as the current Perm Rep, Jack Kelly, made significant decisions on this issue. Some major issues to consider are: *Did the Europeans win the debate and really got exactly what they wanted – and isn't the position of the European Met Directors quite logical and defensible? Did the USA wait too long or concede too early to deal with the issue in WMO? Did the Congress in its 1990 Budget Reconciliation Act undermine the USA position? Were the Scientific and Academic community too quiet in their reaction? Is resolution 40 only a tempest in a teapot? - Has anyone really been hurt by it?*

THE FORMATIVE YEARS: 1850-1950

From its inception as a modern science, the study of the atmosphere and its day to day changes (the application of weather observing and prediction) has relied on the exchange of observations in the form of data and later analyses of that data either through subjective or objective techniques. This birth of modern atmospheric science and application of weather analysis and forecasting was a result of major technological inventiveness resulting in significant improvements in communication initially by use of the telegraph and later by wireless communication. From 1850 to 1950 the protocol for standardizing this world wide endeavor to observe and analyse the atmosphere was carried out

under the auspices of the International Meteorological Organization (IMO) composed largely of all the Director's of National Meteorological Services. The IMO was largely responsible for the initial infrastructure to observe and predict the atmosphere on a global basis. The IMO clearly recognized that weather and climate do not recognize political or economic boundaries and the roots and strength of atmospheric science will depend on global cooperation to succeed. While not explicitly written the global infrastructure implemented by the IMO was based entirely on the principle of free and unrestricted exchange of all meteorological data. These efforts later were to form the basis for the World Weather Watch under the WMO.

THE ACCELERATION OF GLOBAL ENVIRONMENTAL SCIENCE AND SERVICES: 1950-1980

The time period stretching from the end of World War II into the 1980s might be considered the “hay day” of atmospheric science. During this period there was a clear reaffirmation that it was a global science requiring an effort by all countries to observe and exchange data and information. This recognition was most important in order to understand and predict the variability of the atmosphere on many time and related space scales. During this time period the WMO was formed; Numerical Weather Prediction blossomed with many related advances such as computational technology, understanding of atmospheric physics, and high speed communications; and the ability to timely observe the entire atmosphere from environmental satellites as well as other remote sensing. Scientific and technological breakthroughs gave rise to the most cooperative field experimentation and application since the International Geophysical and Polar Years. The large scale global experiments such as the First Global Weather Experiment and others related to the Global Atmospheric Research Program coupled with the emergence of large global numerical weather centers such as the European Center for Medium-range Weather Forecasting and the National Meteorological Center, the Geophysical Fluid Dynamics Laboratory, NCAR, and many others clearly became dependent on global data sets that could be exchanged freely and without restriction. Atmospheric and Ocean Scientists from nearly every country of the world, in an unprecedented show of cooperation, implicitly agreed to share all global observations collected that could support our understanding of climate and weather as well as the day to day operational forecasts within the World Weather Watch. Japan, the USA, the USSR, and Europe all agreed to make available all satellite data without “any” restriction on the use of data and further encouraged and agreed to an international system of shared data processing and storage. Not only was there a euphoric desire by most all governments and individual scientists to share in the task to improve the global data base in support of weather and climate, but more broadly to the whole environment. This spirit gave rise to many global environmental concepts such as the Global Environmental Monitoring System and Earthwatch just to mention a few. During the end of this period, black clouds started to emerge, particularly from the developed countries, which came in the form of nationalism, smaller government, and concepts such as the user pays. *Did the global Atmospheric Science community's Decision Makers recognize this ominous sign early enough and could they have done anything different?*

THE START OF SIGNIFICANT CONFLICT BETWEEN COMMERCIALIZATION OF METEOROLOGICAL SERVICES AND PUBLIC FUNDING: 1980 – 2000

Starting sometime in the late 1970s and early 1980s the spirit and implementation of global atmospheric data sharing began to diminish. Globally, there were cracks forming in the wisdom of centrally planned economies and the concept of Government ownership. Many European governments were changing to more conservative policies that included privatization of many government functions. Similar changes were occurring in the USA and Canada beginning near the end of the Jimmy Carter administration and carried on with great support with the new Regan Presidency. In addition, the private weather industry in the USA was beginning to show significant profits and to expand outside the borders of the the USA. Studies, such as the Booz-Allen investigation of the National Weather Service and other proposed regulation of government user

charges raised the larger question, *What is the role of Government in providing warning and forecast services to the public and the related systematic observing of the atmosphere?* For the most part, nearly every developed country was to embrace a more pay as go philosophy starting in the 1980s influencing the perceived future of National Meteorological Services. This case study will try and show how this turnabout in global cooperation evolved resulting in major conflict between those countries pursuing a major emphasis in commercialization of meteorological services and those still pursuing a major base funding from direct government appropriation. The decision process that led up to the adoption in 1995 by the twelfth Meteorological Congress of Resolution 40 can describe this evolution. Res. 40 has become the key guideline now used for the international exchange of environmental data and the global practice of meteorological services.

The development and economic expansion of the private weather sector in the USA was supported in large part by the National Weather Service through its changed policy of making data and products available on a wholesale basis at little or no cost except for basic communication line charges and the capital costs of communication modems. This availability of global data sets at cost allowed the US private industry to compete on near level footing in other countries. Most developed countries outside of the USA and Canada, had practices and policies that significantly impeded the development of the private sector. Further, because of the relatively benign weather (compared to the USA) and the limited private media in Europe, there was not the same major market that was available in North America.

In the first years of the 1980s the European Meteorological Services saw some market loss in their country to not only American private industry, but amongst themselves. The first major statement by WMO on the issue of data exchange came in 1987 during the Tenth Congress when it decided that high priority should be given to the elaboration of policies and arrangements for free international data exchange which adequately take account of the implications of the ever increasing economic and social value of meteorological data and products and the different ways that needs for specialized services are met in different countries. This statement by Congress 10 resulted in a preliminary analysis by the Secretary General on the cost recovery commercialization issue.

Even with the Congress 10 decision, the issue continued to be of concern, particularly in Europe. For Example, in 1987 the London Weather Center started to form a partnership to broadcast weather into Scandinavia, in Swedish, along with providing weather information in Finnish for a Helsinki paper. Recognizing that problems were starting to occur within Europe, the member states of ECMWF at an extraordinary session in August of 1987 gathered to discuss guidelines for the exchange of products and data along with practices to be agreed to between the European meteorological services. This may represent the earliest formulation of what would be expanded and become Resolution 40. In fact, one outcome of the session was an European agreement on "General principles to be the basis of fruitful and fair co-operation between National Meteorological Services".

Discussions on the impact of commercialization of Meteorological Services was becoming a topic of major concern within the WMO at the same time as principles of cooperation were being discussed in Europe. In 1986 and 1987 the WMO Bureau and Executive Council held discussions primarily in confidential session on this issue. The Permanent Representatives from the USA and Australia, were concerned how such a discussion would affect their on domestic policy so the documentation usually was kept confidential. *What was the impact of containing this discussion within WMO while more open discussion was going on in Europe?* As a result of the Bureau meetings (January and June) the Secretary-General was asked to solicit the views of Bureau Members and prepare a Document for the January 1988 Bureau.

In the preparation phase of the paper for consideration of the 1988 Bureau, John Zillman suggested that a confidential document be prepared for EC-40 which concisely identifies the basic issues and explains the reason for WMO taking a stand. The document will provide a comprehensive analysis on the various issues from both a national and international perspective so as hopefully to formulate a consensus document for national discussions on commercialization issues as well as a strongly

agreed upon WMO position on the issues. Zillman recognized that this was a sensitive and complex issue that would face many National Services in the coming years. He specifically noted that an infectious user-pays anti-public-expenditure mentality appeared to be raging through Governments and that the National Met Services were being swept up in this tidal wave. There seem to be some frustration in that Governments were giving no consideration to the uniquely international character of meteorology or the longer-term view of sustainability of valuable infrastructure needed for understanding our environment. It was also recognized that WMO was treading on the fringe of national sovereignty with regarding to national funding issues. For some decision makers this was a critical point on whether to get WMO involved. Some suggested that an incorrect decision by the Executive Council could be counter-productive. Equally important for the Decision Makers on the Bureau and EC, was the timing and urgency of the issue. Even with this caution, it was believed that the risk of International Meteorology taking a stand would be preferred to having individual Met Services picked off one by one. Zillman offered to the Secretary General to prepare a first draft of the basic issue on Commercialization of Meteorological Services and a draft statement for EC-40 to consider on the issue.

Zillman also pointed out that in 1976 an Independent Committee of Inquiry raised a question on the extent to which, and the means by which, the Australian Bureau of Meteorology could attract more revenue for the services it provides. Raising this issue brought about a very forceful public and media rejection of the suggestion that part of the cost of operation of the Australian Bureau should be met by charges. As a result, the Government reaffirmed the role of a basic weather forecasting and warning service as a community necessity and that all data and products should be available free of charge to all. Later in 1987, the Government proposed full recovery of the entire net cost of the operation of the Bureau through charges on the media. The Bureau argued against this proposal and with the exception of a small requirement for charges for specialized services to the media. As this paper is being prepared, Australia is once again looking at the financing of the Bureau of Meteorology. The point of this discussion is to emphasize that Zillman was dealing with a related issue at both the national and international level. This same situation was also going on in the USA, Canada, New Zealand, and Europe. *As a US Decision Maker the dilemma was to fight user charges or switch to some commercialization; and if to fight what tactics and timing should be used?*

At this stage one might argue it was “getting late in the day” for this issue. The Europeans had already decided to give in to their governments and commercialize. It must be pointed out that at this point the term commercialization used in Europe also included cost recovery from other Government Funding. There was some thought by Europeans that Commercialization/Cost-recovery was preferable to Privatization which was being pursued in other sectors such as transportation and public utilities. Even with the Europeans already fully entrenched in Commercialization. Zillman and others felt that the WMO policy statement should include a general description of the existing international regime (including strengths and weaknesses; an identification of problems posed by commercialization, a vision of the essential features of the future international approach, and an elaboration of national arrangements requiring sustainability that would include basic infrastructure, public services, international cooperation, and specialized services.

Before the January, 1988, WMO Bureau session several participants provided comments on the issue of commercialization and more specifically the document being prepared for EC-40. Hallgren suggested that the principle of free exchange of the data be kept outside the discussions of cost recovery and commercialization. He suggested there was no reasonable argument to restrict the free exchange of data and, in fact, international data exchange should be expanded. He also made the point that international marketing of “tailored” services are intertwined with national and international trade policies. At this point, in the evolution of Res 40, there was little discussion on legal instruments that were the basis for National Met Services; however the comments to the bureau by Degafu (Ethiopia) point out the mandates given various NMSs. “In the case of The People’s Democratic Republic of Ethiopia, the national law entrusts all meteorological services of the country to National Meteorological Services Agency and empowers it to collect fees and charges for the

services it renders.” Degafu went on to suggest, “Each country should take appropriate legal measures to permit/reject transboundary commercial firms to operate in its territory.” One of Degafu’s points was that private sector firms and commercialized Met Services operating in developing countries could undermine the development of the NMS. Quite interestingly, Ju Izrael (USSR) pointed out that, “commercialization would, without any doubt, lead to a monopoly by some countries with centers equipped with advanced technology. Further this could deprive WMO of collaboration between members on an equal non-discriminatory basis.” Houghton of the UK pointed out that the public should pay for services only if it is perceived as improved service. An interesting point here is that perhaps the UK deliberately reduced the quality of their general public service in order to get payment for special services! Houghton made the point, later to be the main argument of the Europeans, that the private sector that receives basic data and products from the global infrastructure does not share in its financing. Houghton raised one of the key issues with respect to user charges, how does one set a price? The European position has been to neglect the market forces and use the prices to basically shut-out the private sector competition in Europe. Houghton did indicate that within Western Europe, consideration was being given by NMSs to invoking national copyright laws or international intellectual property-right agreements. In addition, EUMETSAT was considering encryption of meteorological broadcasts. Finally Houghton suggested that WMO Members agree to provide GTS data to third parties only under contract that would prevent their use for provision of services to users in other countries.

The Bureau made slight modifications to the documents prepared by Zillman and they were considered at EC40 in June 1988. As a matter of reference, Joe Friday took over for Dick Hallgren as PR of the USA at the EC-40 session. This session considered the issue under an agenda item on “Internal matters of the Executive Council – Provision of special meteorological services”. The council recorded very little discussion on the item but did pass resolution 18 (EC-XL). The resolution urges members to adopt policies for the provision of basic and specialized services and to strengthen principles and practices that include clearly defining the mandate and responsibility of their NMS with regard to basic weather services (e.g. dealing with public safety) and for maintenance of a basic observation structure within the World Weather Watch. In addition the resolution urged commitments of Members and WWW Centers to free, unrestricted and non-discriminatory international exchange of data and products. The resolution also specifies that special meteorological services should be undertaken in a manner that does not impact adversely on the NMS of other countries. The major action from the resolution was to request the Secretary-General to draft guidelines on the provision of basic and special meteorological services.

In March of 1989, the WMO convened a meeting of experts to draft the guidelines requested of the SG. The basic paper for the session was drafted by a Canadian, Phil Aber, which gave the perspective mainly from the Canadian AES model. There were several other short papers prepared dealing with Hydrology, Aviation and Marine Meteorology, and several letters from South America and Africa. The PR of the USA was represented at the session by Gordon Cartwright. Very little new material resulted from the session except for a document entitled “First Draft of Principles on Provision of Basic and Special Meteorological Services.” This document presented little new material that was not already recorded in resolution 18 from EC40.

At EC41 (1989) there was a recognition that the draft guidelines were not usable and it was decided that all of the EC should comment and provide suggestions that could be used in a document for EC42. During this period in the USA, the NWS was in the process of drafting a “Policy Statement on the Weather Service/Private Sector Partnership”. The Policy was published in the Federal Register on December 22, 1989, and basically said (1) the NWS will be the Official Voice in the preparation of Warnings, (2) the NWS will not compete when services are available from the Private Sector, and (3) there will be non discriminatory access to all NWS data and information.

Perhaps the biggest blow to the USA position of free and unrestricted exchange of data came from internal sources when the Congress included in its 1990 Budget Reconciliation Act (BRA). The act required that fees from providing data and services at “fair market prices” offset part of the NWS budget. Up until the BRA, the unwritten policy was to provide data and information collected by

taxpayer revenues at the cost of making copies. This action seriously hurt the USA in trying to fend off the European position. In fact, at the same time, the EUMETSAT was informing NOAA that the WMO Panel of Experts on Satellites also raised the question of the private sector sharing in the cost of the infrastructure. This letter was perceived to be the beginning of the European decision to encrypt its rebroadcast of weather information and later high-resolution imagery from METEOSAT.

In March of 1990 the SG sent JOE Friday a draft of the revised Guidelines prepared a year earlier at the “expert” session. The Guidelines had the benefit of some input from letters to the SG, but there was little significant change. The revised Guidelines were to be submitted to EC42. EC42 (1990) basically reaffirmed the need for free and unrestricted exchange of basic data and products and the importance of maintaining the observation and services infrastructure. The EC went on to note the widely differing practices of Members which prevented adoption of any detailed guidelines, but agreed to get further input on the guidelines and keep this issue under review. At this point, it could be argued that the USA and Australia killed the issue, or at least stonewalled it, during the inter-sessional period between the 10th and 11th Congress (87-91).

The SG waited 9 months before sending the draft guidelines to all Members of WMO in March, 1991. Because of the late distribution of the draft guidelines, there was little significant comment available for use in submitting the guidelines to 11th Congress on May 1, 1991. It appeared that the Europeans were quite disappointed that no real action had occurred over the previous four years to deal with their concerns. During the Congress 11 there was little formal debate on the issue which was taken up as a sub-item, “Effects of Commercialization of Meteorological Products and Services” under the agenda on Long-Range Planning. The action taken by the Congress was to request EC to establish a working group to study the problems associated with commercialization of meteorological products and services, and to make proposals on future practices. In this decision the Congress endorsed the basic concepts in the guidelines already drafted, but suggested they did need further refinements. EC43 was a short 3 day session immediately after the Congress which established a Working Group to (1) study problems associated with Commercialization, (2) explore measures to reinforce the principle of free and unrestricted international exchange of basic data and products, and (3) to submit a report to EC45. The membership on the committee was skewed quite favorably for the Europeans. There were 4 Europeans and 2 members from each of the other regions except Asia which had 3. The two North American members were from the USA and Honduras. The chair, Andre Lebeau, was from France and the vice chair from Spain. *Would a different makeup of the WG changed the outcome?*

Soon after the 11th Congress, the European Weather Directors called for a “Task Force meeting on Data and Services (18-19 July. Joe Friday was invited to send an observer to the session, and Jim Neilon was his representative. This meeting identified that the Europeans would deal with 5 data sets, (1) Basic Global Data, (2) Supplementary Global Data, (3) European Data, (4) Basic Global Products, and (5) European Products. In addition, there was basic agreement to form an Economic Interest Group (EIG) called Euromet that would define the content of the data sets and manage the controls, distribution and licensing. There was agreement to discuss the outcome of the meeting with the NWS in November, 1991.

In August of 1991, The Director of the NWS, Joe Friday, sent the Director-General of the UK Met Office, John Houghton, a copy of the proposed new schedule of charges for the Family of Services in the USA as required under the BRA. The charges were intended to be a “first approximation of fair Market value” as required under the BRA. The BRA was signed on 12 July 1991 from PL 101-508 Section 10201 and became 15 U.S.C. 1534. The intent of the letter was to ask for comments, and also to express concern over the outcome of the European Task Force session. The attachment sent to Houghton was a copy of the Federal Register announcement proposing charges. Friday did point out a phrase in the proposal that provided for “waivers of fees as necessary to continue to participate in international data sharing arrangements and to provide data at cost of reproduction or transmission to other government entities, universities, and non-profit organizations for non-commercial use.” This formulation of words almost sounded like the Europeans wrote it!

In 1991 the Europeans felt confident they were on the track to get the commercialization issue resolved. On 15 October 1991 Andre Lebeau, Director of Meteo France, wrote to his fellow European Directors and indicated France would now withhold certain data insertion on the GTS (SM & SI Messages). The withholding would be those stations France deemed in high-density areas and would also limit other stations to just 4 observations per day. Lebeau indicated that exchange of data through the GTS “has consisted, in fact if not in law, of putting the maximum available data gather over a country’s territory.” He further indicated that observations have different value, depending on their density, and that much of the french data was to meet the local needs of Europeans. He also indicated the rationale for his decision: “The situation changes, however, from the moment when the GTS becomes, as a consequence of the policy of certain countries, a system which is open and offers no means of control.” He explained, data originating from certain territories can come back to that territory to be sold by private organizations who obtained them virtually free of charge and then benefit from a subsidy and make an “unjustifiable profit.” France also made clear that all of their data would be available within RA-VI (Europe) subject to a formal agreement not to redistribute such data. The Implementation of the French policy was implemented in January 1992.

In response to the Lebeau letter, The Danish Met Service indicated they do not allow uncontrolled direct access to real time data and products. Further data is not passed to commercial entities in Denmark. Interestingly, the Danish Service raised major questions on the need for an EIG that could be viewed as a Multinational Company that could eventually threaten commercial use of national data.

In preparation of the February 1992 Bureau, the SG submitted a document on the “Provision of Basic and Special Meteorological Services.” The document indicated that the WG would meet in October, 1992, that the WMO was informed that France Denmark and Germany were modifying their data exchange practices, and raised concerns of a potential danger that the media would pick-up some signals and start asking questions from WMO officials in connection with the commercialization issue. In this regard, the SG suggested that development of a contingency plan to deal with the media. The Bureau stated that, “restriction on data flow may not be advantageous; and any increased use of met data should be considered as beneficial.” The Bureau also recognized that international data exchange was a matter of practice and tradition, but raised the question regarding legal basis. The Bureau did recognize the growing importance of the commercialization issue and agreed “that it was necessary for WMO to urgently; but carefully, address further the question of an explicit code of conduct on data exchange as it relates to commercialization.” As a result it was agreed to have an informal discussion on this matter during EC44 (June 92).

In preparation for the informal discussion to be held at EC44, the SG sent letters on 9 April to members of EC and described the issue to be discussed as, “What restrictions should apply to the use of foreign data (and products and services) exchanged among NMSs on the GTS, including conditions for making the data available to the private sector and others?” On 29 April, Joe Friday wrote to the SG with a copy to Lebeau regarding three aspects of the issue: (1) The subject for discussion is not the commercialization of NMS as this is a national decision, (2) There are problems with such commercialization, and (3) Free and Unrestricted exchange of data should be reinforced. Friday also indicated that most deficiencies in data availability are from inability to take observations rather than unwillingness to make them available and that free and unrestricted data exchange applies to Members (i.e. Governments) and only incidentally to NMSs. Friday also question why global solutions are being proposed for the problems of just a few which could be solved nationally.

On 4 June the SG submitted to EC members a background paper for the informal discussion to be held. The paper also contained some views of members. The document suggested a unanimous agreement on the fundamental nature of free and unrestricted international exchange of data (FUIED). In addition it was suggested that consideration be given to establishment of a mechanism to monitor and report potential conflicts with FUIED in light of commercial meteorological activities; a code of conduct should be developed; and that comments should be solicited from a broader audience (e.g. all Members and WMO partners). Within the document

there were views from the some EC members. Alaimo (Argentina) pointed out that the private sector was “Disloyal Competition”. Lebeau (France) recognized that the Meteorological Information Market was growing resulting in more private companies and more NMS commercial sectors, all trying to get available revenues. He also recognized that competition among NMSs would result in disaster. For this reason he emphasized that the issue of re-export would lead to a situation that is dangerously unstable. He pointed out that the practice consisting of giving data and products to transnational operators without financial contribution is unacceptable because of “effortless enrichment” and “disloyal competition” against the NMS. Zillman (Australia) recalled his 1988 paper that still was pertinent. He reemphasized the sensitivity of the issue and that data must be treated as International public Property. Zillman made the following point, “Freely exchanged data and products have substantial potential economic value within countries, but no commercial value unless the country chooses to restrict access and impose policies which prevent the use of access arrangement in other countries. Restriction to basic data and products in order to endow them with commercial value for purposes of revenue generation or national advantage challenges other countries to retaliate. Except in a legislated monopoly situation, attempts to use revenue from specialized services to meet all or part of basic services and infrastructure costs will inevitably be counterproductive. The moment a NMS restricts access to basic data to the private sector it is in effect providing taxpayer subsidization of its own commercial activities and taking unfair advantage. If NMSs withhold access to basic network data, climate and research funding will withdrawal support of the World Weather Watch.” Finally Zubov (Russian Fed.) made the point that. “the introduction of commercialization will doubtless lead to a monopoly by some countries having centers equipped with high tech that is not available to others leaving them non competitive.”

Just after the SG’s document was distributed to EC members, a copy of a letter between Julian Hunt (speaking on behalf of the 16 Western European Met Directors) and Andre Lebeau (Chair of the EC Working Group) was made available to EC members that described the proposed Western European Economic Interest Group call ECOMET. The substance of the letter indicated the need to form such an institution as ECOMET in order to comply with European Community Competition Laws. ECOMET was to provide a cooperative mechanism for the provision, sale and marketing of data and services by Western European NMSs. ECOMET would also provide a way to regulate meteorological information in ECOMET territories including the regulation of relations with the private sector. The Western European Directors also recognized the need to impose some form of agreed upon conditions on the exchange of information on the Global Telecommunications System of the WWW. The formal EC 44 deliberations were relatively passive and only called for the WG on commercialization to study all aspects of the problem and to consider the views from the informal discussion.

The EC WG meeting was held from 26 –30 October 1992. Just before the WG session a letter was sent to Joe Friday, Director of the NWS, From the Director of the Spanish Met Service acting on behalf of the meeting of NMS Directors of Iberoamerican Countries. The was to inform the PR of the USA that the NMSs of South America felt that private meteorological service companies, principally from the USA practiced unfair commercialization that have possibilities to hurt development and even the survival of NMSs in South America. The letter appears to repeat the European View of “disloyal competition” and also raise the possibility that South American data was covered by copyright. Finally the letter points out that the incursion of private sector firms in South America could lead to a progressive loss of credibility in the eyes of society and national governments suggesting that the NMS could be replaced by a private company. The letter suggests that the European Directors were on a world wide campaign to turn the rest of the world against private meteorology by using tactics that raised undo concerns in developing countries.

The EC WG session in October was quite contentious. The Europeans let by the Chair were determined to get something on the way to approval at the next Congress in 1995. Many of the participants in the Working Group were vying for WMO officer positions, and did not want to give an impression that there could not be any progress on the issue. Perhaps, for this reason, there was some movement of compromise very late in the meeting. This movement to compromise seemed to be more forthcoming on the part of Joe Friday, but there is some room for debate on this viewpoint.

Nevertheless the compromise was on a draft resolution to be submitted to EC45 that would set out principles for data exchange as well as guidelines for the conduct of Members on this issue. Quite uncharacteristic of WMO meetings, the summary report of the WG was not available at the end of the session. Further it was not available for the Bureau in March of 1993 and in fact was just hand delivered to members of EC at their 45th session in June of 93 almost 9 months later. The substance of the report was in fact reported in a special document prepared by the chair for submission to EC45, but was unavailable to the Bureau in March of 93. The degree of rancor at WG session can be seen in the following sentence submitted in the background information section of the document submitted to EC: "A challenge to achieving this goal was seen in some Members' increased reluctance to make data and products, which now have significant commercial value, widely available with no restrictions on their use. For decision-makers, this may have been the pivotal session leading to Resolution 40. For the first time, there was an explicit agreement on the part of an expert or representative of the USA to acknowledge that the exchange of data and products under the auspices of WMO programs could be separated into at least two categories. One category could have restrictions or conditions on their use. Actually, hidden (i.e. it was not set off like Tiers 1 & 2) in the draft resolution was the essence of a third tier. The Third tier would agree to bilateral arrangements between NMSs or groups of NMSs (European Met Services) for exchange of data. *Should the USA have agreed to accept this 2/3 category split?* Further it recognized that special information should be exchanged on a bilateral basis between NMSs, with appropriate agreements as to its use. Again, it must be pointed out that the pressure on Joe Friday at the session was extremely difficult as there was little or no support from other WG members with the exception of Zillman, who like Friday was also being undercut by some actions in their own government.

By the time that EC45 met (8-18 June) the concept of a two or three tier system of international data and product exchange was being steamrolled into the WMO. The procedures and language at the session were quite unique and supported the near adoption of the position favored by the European Directors. The report of the WG on commercialization was only made available at the session having met 9 months earlier. The report did not have the benefit of the Bureau's deliberation only the report of the Chair. Further, the language in the EC45 reported an approval by Congress 11 of the two-tier approach when, in fact, Congress 11 only endorsed with many misgivings the entire set of very general guidelines established by EC42. Congress 11 specifically called for additional refinements and in-dept studies on the problems associated with commercialization. EC45 while implying that Congress 11 approved the two tier approach, was quite critical that much more work was required of the Working group regarding the confirmation of Member's contributions to two tier approach and on the impacts on Members. On top of some of the most unique procedures used in any WMO set of sessions, it is instructive to examine the introduction of the document from the WG chair, Andre Lebeau because it points out a major point with this difficult and complex issue. Lebeau did recognize this complexity and pointed out it was a question the nature of which deeply divided the meteorological community. His introduction was quite clever and included the following aspects: (1) For the first time, he forced the issue that there were opinions that differed as to the means of obtaining reinforcement of the principle of unrestricted and free exchange of data and products "between National Meteorological Services"; (2) He postulated that any resolution will not satisfy one or the other principle advocates; (3) He very subtly brought in the fact that a third tier was needed; (4) requested that the EC agree that "all Members apply the proposed practice "on an interim basis without waiting for its formal acceptance by the Congress"; and (5) He pointed out that FUIED relies on no solid judicial foundation and is thus very vulnerable by being merely a practice." His first point was the art of finesse that brought what was to be exchange among Members to an exchange among National Met Services, and since in France and most of Europe the two are nearly the same, it made little difference to them. Also, Lebeau, in a very articulate manner, was able to continue the contradictory statement on believing in free and unrestricted data exchange on one hand and then make a case for setting some data aside which would in fact have the restriction of non use for commercial export. This perceived illogic continues today and is incorporated in RES 40. The second point merely paved the way for an earlier comment that RES 40 was really an agreement on what is not unacceptable. Lebeau in his third point commented that this already was a common practice (e.g. ECMWF members). Lebeau's four point was to further support the "steamroller" action and assume a *fait accompli*. The last point made by Lebeau was to move, without precedent

from a WMO practice to a legal instrument. One important aspect of the EC report called for the Technical Commissions to specify the data and products required for WMO requirements. Finally it requested the Working Group to submit a draft of the report for Congress 12 to EC 46. *Should the representative of the USA objected to the procedures used at EC46, and if so, what would have been accomplished?*

Besides the preparations for EC45 in early 1993, the private sector in Europe, mainly through Mr. Harry Otten of Meteo Consul, was challenging the legality of the practices of ECOMET. The challenge was made to the European Commonwealth Commission on Competitiveness. Otten reported to the Commission that ECOMET was forcing the private sector out of business by its extreme pricing and other constraints related to the use of data to provide services to third parties. In the USA, a major reversal of policy was taking place through the issuance of OMB circular A-130 which set forth policy required by the Paperwork Reduction Act of 1980. A-130 set forth the prohibition of user charges by government agencies that provided goods and services already paid for with public tax payer funds. Several of the large European Met Services were under great pressure to recover considerable amounts of their budget. Again, recovery and commercialization in Europe includes both reimbursable funding from other government agencies as well as non-governmental sources. An example of this pressure can be seen in the Data Management Policy of the UK Met office published by Julian Hunt in mid 1993. UK Met pricing was based on (1) the use for the data will be put including research and academic institutions who were asked to negotiate prices in order to contribute to the MET infrastructure, (2) prices would vary with “market conditions”, and visits of groups to Weather Centers were expected to pay a nominal charge. Both the method of pricing and the charging for tours of Government Weather Offices were quite unique to all other meteorological commercialization. The first formal signs that the research and academic community were aware of the possibility of some major change related to international data exchange came in the form of letter in December 1993 to the SG of WMO from ICSU chairman of the Panel on World Data Centers, Stan Ruttenberg. Ruttenberg pointed out that the USA policy to commercialize Landsat was a major failure. The Policy had intended to put the Landsat program largely on a cost recovery basis, but in doing this no recognized the limited market for high cost pictures from a satellite that initially was justified and paid for by Public Appropriations. The letter pointed out that ICSU was a partner with WMO in GCOS and that the data most all countries signed on to the open and unrestricted exchange of environment data (often called the Bromley principles) at the UNCED in Rio.

The count down to Res 40, from 1 January 1994 through June 1995, saw considerable increased activity in the WMO, within Europe and the USA. The key WMO sessions in this period include two January sessions of the WMO Bureau (1994 & 1995); two sessions of the WG on Commercialization (January, 1994 and November, 1994); EC-46 (June, 1994); the Eleventh session of Regional Association I (Africa – November, 1994); and Cg-XII (June 1995). During this period it also become clear that the decisions on data exchange leading up to RES 40 were largely

a debate between Europe on one side, led primarily by France and the UK and the USA with Australia on the other side. The Directors of the European Meteorological Services were able to meet almost on a weekly basis under 5 or 6 different banners (e.g. EUMETSAT council; International Conference of Western European Directors – ICWED; ECMWF council; European Climate Support Network – ECSN; ECOMET directors; and WMO Regional Association VI. Within the USA, there were several major activities dealing with the issue; however most of these activities were “playing catch-up” to deal with the two/three tier proposal favored by the Europeans. The USA activities included a special AMS Ad hoc committee on International Data Exchange; a special study on the issue by the NRC Committee on Geophysical and Environmental Data; a special Federal Government Interagency committee under the CENR/CISET; A special project by the Chairman of UCAR to raise interest from the global scientific community; several bilateral meetings between the USA and EUMETSAT on Data Policies for Meteosat and METOP; and an organized response by the US private sector to the European Commission on the proposed ECOMET.

During the many discussions that went on during this countdown period, very little debate focused specifically on retrospective or hydrological data. In preparation for the Bureau meeting in January 1994, Zillman reinforced his views on the importance of WMO properly handling the data exchange issue as well as making available the Australian view on the issue. One of the important aspects of the Australian view was the fear that NMSs that were commercializing by publicizing their own initiatives would delude other country governments into believing that it would be possible to fund the core costs of the operation of NMSs from commercial revenue. In addition he pointed out that once meteorological data and products are ascribed a non-zero value they must be expected to become subject to future legal regimes covering international trade in services.

Quite interestingly, a major part of the SG’s introduction to the second session of the WGCOP in January, 1994, was in near contradiction to Zillman’s cautions regarding the perception of funding all or significant parts of the core NMS infrastructure. The report of the session indicated the SG, “identified the precarious situation within NMHSs which have not yet consolidated the basic infrastructure of observation and communication networks within their countries and are introducing commercial activities in the hope of supplementing inadequate funding levels for their Service.” Most of the developing world was looking to the SG for his personal guidance on the issue of commercialization and data exchange; however, there is no clear indication that the SG provided such guidance. In the final analysis, the SG may have had the influence to change the outcome of this issue had the developing countries opted for the status quo. Therefore, we must ask, *What role could the SG have played in influencing the Developing world on the commercialization? Was his reappointment more important whereby he was dependent on the Europeans?*

The WGCOM meeting's main objective was to recommend a resolution to EC46 that could be further recommended to CgXII for adoption. The time was short and everyone recognized that RES 20 from EC45 was only a skeleton that needed considerable explanation and elaboration if there was any chance for agreement. Zillman and Lebeau had informally agreed that in order to avoid a major breakdown in WMO, the final Congress decision needed to be unanimous. During the WGCOM session Friday and Zillman continued to point out that the proposals provided some concern by some of the movement away from "traditional" free and unrestricted exchange. Others also pointed out the implication voiced by user communities on the outcome if the proposed practice is not adopted, and voiced some concern over the ability to implement the practice. WGCOM did agree to a resolution of only two tiers, but did put wording that recognized the use of bilateral data exchange outside of WMO. *Should this decision be interrupted as encouraging or condoning such a practice?* The WGCOM also agreed to have a prototype project to help further establish the details of the proposed resolution. The prototype project was to define the recommended data and products for Tiers 1 & 2, decide on the best way to describe the proposal for easy understanding, to make make the proposal as "advisory not regulatory", and to build the proposal from RES 20 of EC 45. Further, it was agreed that some testing of the proposal should occur before EC 46. In deciding on an advisory practice rather than a regulation, the WGCOM had benefit of legal opinions provided by Sweden, WIPO, Belgium, and an independent lawyer funded by 5000 Pounds from the UK. It should be pointed out that Lebeau could not get support for a legally binding proposal, but did manage to get the following words in the report of the WG, "WMO may need to become more involved with legal considerations." Another major part of the WGCOM session was the SG's report on several activities requested by EC45. In particular, he provided information on the identification and development of educational materials on Commercialization which was nearly all based on the European model. The SG also indicated has contact with other international agencies including IOC, IMO, and ICAO, on the proposed practice as it was contained in RES 20 of EC45. One of the interesting decisions the WGCOM agreed to was that, "implications of the new practice on data archives would be explained further after consultation with Members and Users."

The WMO Bureau met in session immediately after the WGCOM and made little or no comment on the report of the WGCOM session except to propose a new agenda item for the 46th session of the EC. The new agenda item would be the "topic of commercialization." Up until this proposal the Data Exchange had been discussed under several different indirect topic agenda items (e.g. Long Term Plan, Basic Services of National Hydro meteorological Services, etc.).