

# Resolutions of the Union and of the Associations

## RESOLUTIONS OF THE UNION

### Resolution N°1

The International Union of Geodesy and Geophysics

Considering the scientific, technical and economic importance of the African Doppler Survey (ADOS),

Noting the significance of this programme for improving the knowledge of the figure of the Earth and for coordinating the various geodetic networks, in Africa,

Noting that two training seminars on Doppler techniques are to be organized in collaboration with the IAG as well as the Third International Symposium on Geodesy in Africa in 1985,

Requests the international and national cooperative organizations to support these activities.

### Resolution N°2

The International Union of Geodesy and Geophysics

Considering the extraordinary international importance of the U.S. Navy Navigation Satellite System, both to the science of geodesy and to civil surveying in this field,

Noting that

- (1) this system is due to be discontinued, and
- (2) other precise satellite-based radio positioning systems such as U.S. Global Positioning System (GPS) and the USSR Global Navigational Satellite System (GLONASS) are being developed or conceived,

Strongly urges the appropriate authorities to make available to the international scientific and civil community the information necessary to obtain maximum position accuracy from the new system.

### Resolution N°3

The International Union of Geodesy and Geophysics

Noting that a goal of Project MERIT (measurement of Earth's rotation and intercomparison techniques) is to complete a comparative evaluation of the Earth rotation results obtained by different techniques during a dedicated campaign,

Considering that detailed standards are being prepared to accomplish this goal,

Recommends that all MERIT results be referred to these standards, and

Urges that all participants in the Project adhere to the constants, models and reference frames and to the protocols for their use as will be defined in the final MERIT Standard Document.

### Resolution N°4

The International Union of Geodesy and Geophysics

Noting that the transfer of angular momentum between the oceans, atmosphere, and solid Earth is rapidly emerging as a problem of great scientific importance and in view of the significance of this coupling mechanism for fundamental studies in geodesy and solid Earth geophysics,

Recognizing that understanding the Earth's polar motion and rotation depends on an understanding of the effect of the atmosphere and oceans on the solid Earth,

Recommends that cooperative research efforts be encouraged in all countries in order to acquire relevant data and to bring together scientists from all disciplines in multidisciplinary studies of the angular momentum transfer between the solid Earth, the oceans, and the atmosphere.

### Resolution N°5

The International Union of Geodesy and Geophysics

Noting the recent demonstration that angular momentum transfer between the atmosphere and solid Earth makes a major contribution to short term variations in the length of the day and polar motion,

Considering that the Main Campaign of Project MERIT, during the period 1 September 1983 to 31 October 1984, will produce the highest resolution and most accurate measurements of Earth rotation ever achieved,

Requests that WMO make every effort to collect the most complete possible set of global wind and pressure data and to reduce these data in a consistent manner in order to obtain the highest quality atmospheric angular momentum and polar motion excitation function throughout this period, and especially during April through June 1984, concurrent with the period of high intensity MERIT observations.

### **Resolution N°6**

The International Union of Geodesy and Geophysics

Recognizing that the middle atmosphere is of crucial importance to the biosphere through the protection by ozone of the Earth's surface from harmful UV radiation, and because of its possible effects on tropospheric climate, and

Recognizing that understanding of middle atmospheric chemistry, radiation transfer, and dynamics is required for reliable prediction of the effects of human activity on the middle atmosphere,

Recommends that the agencies involved in space research develop and launch satellites to obtain the observations of radiation and chemical and dynamical processes required for uninterrupted growth in our understanding of these processes.

### **Resolution N°7**

The International Union of Geodesy and Geophysics

Recognizing

- (1) that the World Climate Research Programme (WCRP) requires atmospheric and oceanic observations over oceans, and that termination of Ocean station PAPA in the North Pacific in 1981 constitutes a serious loss to the climatic record, to atmospheric and oceanic research activities, and to operational weather forecasting,
- (2) that as a result of increasing cost of operation, special weather ships cannot be relied on to provide continuous fixed point observations, and that several North Pacific nations are cooperating under Canadian leadership, in new ship-of-opportunity programmes to provide oceanographic, surface meteorological, and upper air observations, and
- (3) the increasing capacity of satellites for oceanographic and meteorological observations over the World's oceans,

Commends the efforts of Canada and other cooperating countries in undertaking to develop a satisfactory ship-of-opportunity observing system for the North Pacific, and

Recommends that nations operating satellites over ocean areas be urged to take all steps to ensure the continuity and the quality of meteorological and oceanographic data.

### **Resolution N°8**

The International Union of Geodesy and Geophysics

Noting that more than ninety-five percent of the fresh water on the surface of the Earth is in the great ice sheets of Antarctica and Greenland, which may be subject to significant changes in volume on time scales of decades or centuries,

Aware that such changes could, through their effect on sea level, have an impact on mankind greater than all short-term climate-induced changes in lower latitudes,

Recognizing that there are at present no accurate data on changes in the total ice volume, but that now for the first time it is technically feasible by satellite altimetry to determine surface elevation changes as small as 0.5m, which would allow detection of changes in volume of the Antarctic ice sheet of as little as 1 part in 5000,

Drawing attention to the fact that such changes would provide information about the effects of climate variations long before an unambiguous sea level signal was recognizable,

Wishes to point out the urgent need for and great value of including precision altimetry on a truly polar-orbiting (87° - 93° inclination) satellite, and

Urges that all altimeter-equipped satellites in high-latitude orbits should record the surface elevation of the Antarctic and Greenland ice sheets, and that these data should be made available to the scientific community.

### **Resolution N°9**

The International Union of Geodesy and Geophysics

Noting that the dynamics of the equatorial middle atmosphere are poorly understood and, in particular, that there have been inadequate observations of such phenomena as equatorial waves, tides, gravity waves and turbulence, and of their contribution to the momentum and heat budgets of this region, and taking into account the development of new ground based techniques such as MST/ST radars and lidars, and the refinement of partial reflection and meteor wind radars

Recommends that one or more observatories which combine as many of these systems as possible be established at the earliest opportunity near the equator and preferably in the eastern or western Pacific, where extensive chains of stations already exist at high and mid-latitudes.

### **Resolution N°10**

The International Union of Geodesy and Geophysics

Noting the resolution of ICSU (Resolution 23 of ICSU General Assembly at Cambridge) recognizing both the need for public understanding of the possible consequences of the nuclear arms race and the competence that could be mobilized by ICSU to make an assessment of the biological, medical, and physical effects of the use of nuclear weapons,

Noting further the establishment by the Scientific Committee on Problems of the Environment (SCOPE) of a project on the effects of nuclear war on the atmosphere and the subsequent establishment by the General Committee of ICSU of a broadly based Steering Committee to guide the SCOPE project and to coordinate further proposals for action by members of the ICSU family,

Recognizing the desirability of avoiding any undue dispersion of effort by scientists in relation to the objective assessment of the effects of nuclear war,

Urges all Associations to forward any proposals for additional action to the Steering Committee.

### **Resolution N°11**

The International Union of Geodesy and Geophysics

Recognizing that the need for cartographic representation of the structure of the Earth's crust and upper mantle has become urgent,

Invites all interested Associations to participate actively in the projects of the Working Group on the comprehensive mapping of the Earth's crust and upper mantle established jointly by the International Association of Seismology and Physics of the Earth's Interior and the Commission on the Geological Map of the World of the International Union of Geological Sciences.

### **Resolution N°12**

The International Union of Geodesy and Geophysics

Noting the resolution of the International Union of Geological Sciences concerning the Unesco Sub-programme X.1.4 (Interdisciplinary Research on the Earth's Crust),

Endorses the general objectives of the Inter-Union Commission on the Lithosphere, and in particular, the special goal of strengthening the Earth sciences and their effective application in developing countries,

Supports the Resolution of the International Union of Geological Sciences, and

Urges the General Conference of Unesco to authorize the Director General to include an adequate budget allocation for scientific meetings and symposia of the Inter-Union Commission on the Lithosphere and thus help Unesco to meet the targets of its Major Programme X: *The Human Environment and Terrestrial and Marine Resources*.

### **Resolution N°13**

The International Union of Geodesy and Geophysics

Noting the number of recent incidents involving high-level aircraft entering volcanic-ash plumes, the difficulties of ground observers on or near volcanoes providing warning to pilots in the air, and the potentially disastrous hazard of engine failure caused by ash intakes,

Recommends that much closer links be established between national volcano-monitoring agencies and regional air-traffic control and meteorological offices, and between international aviation organisations (such as the International Air Transport Association and the International Civil Aviation Organization) and the International Association of Volcanology and Chemistry of the Earth's Interior.

### **Resolution N°14**

The International Union of Geodesy and Geophysics

Recalling Resolution 14 of the XVII<sup>th</sup> General Assembly (Canberra), recommending the establishment of a Volcanological Institute for the Western Pacific,

Supports the Draft Project Document for improved training and research in volcanology in the Western Pacific that has been prepared by Unesco's Regional Office for Science and Technology for Southeast Asia (ROSTSEA), and

Urges the United Nations to provide appropriate funds for the immediate implementation of this ROSTSEA project.

### **Resolution N°15**

The International Union of Geodesy and Geophysics

Noting the immense value to the scientific community of past international programmes of coordinated data acquisition, analysis and interpretation such as the International Geophysical Year, the International Year of the Quiet Sun and the International Magnetospheric Survey,

Recognizing the importance, complexity and dynamic nature of the solar-terrestrial interaction, and the need for international programmes designated to acquire and analyze global data for quantitative investigations of the physical and chemical processes that are involved,

Urges member countries to support and to participate in ICSU programmes on Solar-terrestrial interaction, especially in the final analysis phase of the IMS and the continuation of the MAP and in similar programmes now being planned for the coming decade.

### **Resolution N°16**

The International Union of Geodesy and Geophysics

Recognizing the fundamental role which radiative energy exchange processes play in the physics of the climate system,

Considering the requirements for accurate data sets, adequately distributed geographically, on the radiation budget components at the Earth's surface for climate research,

Recommends that

- 1) WMO and ICSU urge all their members to submit data sets from as many stations as possible to the World Radiation Data Centre in Leningrad, according to the recommended procedures which are specified in World Climate Programme Publication N°48,
- 2) WMO and ICSU members establish calibration and inspection routines for experimentally operated stations in addition to the national networks, and
- 3) special climatic data sets be prepared for sensitive and important areas of the Earth for which the data density is still sparse (for example semi-arid areas, the Arctic sea-ice and the Antarctic continent, and the world oceans).

### **Resolution N°17**

The International Union of Geodesy and Geophysics

Recognizing the difficulties of scientists in obtaining adequate climate data for research on meteorology, climatology, and climate impacts studies,

Noting that one of the primary objectives of the World Climate Data Programme is to make climate data more available in convenient formats,

Urges WMO to arrange for compilations of climate data to be made available from international or national data centres to individual scientists for their research in convenient and multipurpose format at concessional rates, especially to scientists in developing countries.

### **Resolution N°18**

The International Union of Geodesy and Geophysics

Considering the importance of highly accurate absolute gravity measurements for geophysical and geodetic research and applications,

Recognizing that future comparisons of different absolute gravity apparatus are necessary to study sources of systematic error,

Requests the support of the Bureau International des Poids et Mesures (International Bureau of Weights and Measures) in hosting an international campaign to compare absolute apparatus, and

Requests all countries having transportable apparatus to take part in the campaign and the subsequent data reduction and analysis.

**Resolution N°19**

Thee Council of the IUGG records with great pleasure its appreciation of the efficient yet relaxed organization of both the scientific and supporting programmes, and on behalf of all participants offers its heartfelt thanks to the National Committee of the Bundesrepublik Deutschland, the Local Organizing Committee and all others concerned for making the XVIII<sup>th</sup> and largest ever, General Assembly such a pleasant and scientifically satisfying experience.

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