

Previous Efforts on Unified Datum

The meeting, reviewed past efforts to establish a unified Geodetic Datum for Africa. The African Doppler Survey (ADOS) Project was revisited. This is the first effort made to establish a Geodetic Datum in Africa using artificial satellites.

It started in 1982 and was completed in 1986. The project was planned by the International Association of Geodesy (IAG) and implemented under the coordination of IAG-Commission for Geodesy for Africa, African Organization of Cartography and Remote Sensing (AOCRS), and ECA. The Nairobi Centre for Mapping of Resources for Development (RCMRD), was the executing agency. Field observations were carried out under bilateral agreements, between the African countries and international geodetic organizations in Europe and America.

When the project ended in 1986, 300 zero order Doppler points had been established spread out in about 45 countries of the continent. However on publication it was found out that the goals of the project had not been met. What was gained was the experience that it was possible to run a continental project, and this was an asset for future endeavours.

The reasons for the failure of the project were noted and these included:

- Field parties did not follow all the set out specifications, such as not noting antenna heights and weather parameters,
- Parties did not occupy existing geodetic control points and also did not provide information on this.
- Logistically it was not possible to carry out all the field observations as set out in the programme.
- Some countries did not get bilateral support and other did not want to participate in the project.
- Lack of expertise and motivation to participate in the project among some of the member countries.
- The project was planned entirely by the IAG and international geodetic experts, without the involvement of African experts, which alienated the later from full participation and support.

It was noted that the above failure is a lesson in the implementation of the AFREF project. To start with the design and planning of the project is being done by Africa itself. Specifications and all the project requirements will be carefully harmonized and logistics will be carefully planned.

Computational requirements for the Doppler satellite technique required that all observations for networks such as the ADOS had to be carried out simultaneously. This was a tall logistical order considering the size and nature of the continent of Africa. Fortunately this is no longer a necessary requirement under the IGS data processing specifications. Observations can now be carried out separately and later processed as part of a network. This reduces the difficulty of planning for field logistics and simplifies the field operations.

Another advantage of the current planned project is that the GPS points must be located on sites with power and telecommunication facilities. These points are easily reached and convenient for observations this adds to the possibility for success.

Resources Requirements

The Meeting considered the resources necessary for the implementation of the AFREF project. The following were noted as necessary inputs:

- National Institutions and qualified personnel,
- Support from and cooperation of International geodetic organizations;
- Positioning Equipment available in each country and the shortfall to be solicited from donors;
- Computing Resources and
- Communication and power infrastructure.

Progress Made

The progress so far made on the project implementation was analyzed. Presentations were received from the following:

- The representative of South Africa presented the status of implementation of the SAFREF component of the AFREF. In addition to observations carried out in South Africa, he presented a planned network of IGS points covering all the SADC countries. It was noted that this group of countries have made a good progress, which could be used as an example for the rest of the project.
- National reports were received from the member states present, which included, Botswana, Ethiopia, Kenya, Namibia, Swaziland, Tanzania and Zambia. They all outlined the application and use of GPS in the establishment of national geodetic control.
- In Botswana a GPS project had been done to establish a national geodetic network linked to IGS and ITRF through the South African network.

- Zambia reported that it has established one permanent observing IGS station. They are planning to carry out a campaign to establish a national GPS network linked to IGS/ITRF.
- All the countries reported that they had established a WGS84 network at their airports to support air navigation for ICAO. Some of these points could later be incorporated to AFREF, if found to be suitable.
- The countries also in reported on their capacity to participate in the AFREF project. This was in terms of the GPS equipment available and the availability of telecommunication and power infrastructure as well as the location of possible IGS/AFREF points.