COMMISSION 4: EPHEMERIDES

President: H. Kinoshita Secretary: C.Y. Hohenkerk

Commission 4 held one business meeting.

Business Meeting, August 26: During the triennium three members had died, Dr LeRoy Doggett, Dr Bruno Morando and Dr H. Beat Wackernagel, the meeting stood for a moment, in remembrance.

The officers elected to Commission 4 for 1997 to 2000 are, President E. Myles Standish Jr., and Vice-President Jean Chapront.

The following membership of the organizing committee was approved:

V.K. Abalakin	He Miao-Fu	H. Kinoshita	H. Schwan
J.-E. Arlot	C.Y. Hohenkerk	G.A. Krasinsky	P.K. Seidelmann
T. Fukushima	G.H. Kaplan	J.H. Lieske	

The following new members were elected:

Steven Bell	David Harper	Georgiy Eroshkin	Martin Lara

The following consultants were approved:

J.A. Bangert	J. Meeus

The total membership of Commission 4, a middle sized commission, is 91. The President reported that the Commission had supported Joint Discussions 3 and 7, which resulted in resolutions B1, B2, B5. being adopted by the GA. The Chairman of the Working Group (WG) on JD and MJD reported that their work had resulted in the adoption of Resolution B1.

Report on Working Groups of Division 1 Kovalevsky reported on the decisions made by Executive Committee concerning WGs. A WG on general relativity in the framework of the space-time reference and methodology. A joint WG of the IAU, BIPM and IAG. The President would be Petit or Leschinta. The WG is to study the definitions, conventions, and notation at a sufficient level of accuracy.

A WG on general relativity in celestial mechanics and astrometry, Their President is Soffel. The WG is to consider the application of observations to celestial mechanics and astrometry, and study the concepts, algorithms, and constants used in astrometry.

A WG on the ICRS. Their President is Mignard. There are two sub-groups, chaired by Dehant and Helmut. Their job is to consider all consequences of the new reference system, the new nutation series, and the maintenance and extension of the Hipparcos Catalogue, and to liaise with the IERS. The main tasks of the WG's were stated in resolutions B5 and B2. All those interested in participating should write or send e-mail to the appropriate WG President.

Kovalesky reported on the continuation of the following three WGs. The IAU/IUGG WG on Precession and Nutation, chaired by Dehant. The WG on Astronomical Standards, chaired by Fukushima, with sub-groups, on Best Estimates, chaired by McCarthy, and SOFA, chaired by Wallace. The WG of the IAU/IAG/COSPAR on Cartographic Coordinates and Rotational Elements of Planets and Satellites, now chaired by Seidelmann. The commission asked the chairman to thank Davies, the retiring Chairman for his work over many years.

The Future for National Nautical Almanac Offices Yallop gave a talk about Nautical Almanac Offices. The text of his talk will be published in the Commission 4 Newletter.

Reports from various Institutions

HM Nautical Almanac Office Hohenkerk reported that there have been several changes in staff. Yallop had retired, and Sinclair was now in charge (part-time), and Harper had been appointed.

Collaboration continued with USNO on *The Astronomical Almanac* and other publications. HMNAO continues to produce, enhance and increase its publications as required, and this now includes the financial viability as well as their usefulness and intellectual content. *The Nautical Almanac* is still the core commercial publication. The web, which by its nature freely provides information to all, is a medium that at present causes problems to HMNAO, who must cover costs through sales of almanacs and related data. There are also problems with copyright. We believe that HMNAO has a future. It will be part of the core of the new RGO, whose business plan is being prepared. We are continuing our work and trying to keep our products up to date as well as developing new ones. We would like to thank all those who wrote letters of support for HMNAO and the RGO.

The Bureau des Longitudes Arlot reported on their publications, which are mostly in French, and are Government funded. An important activity was providing the public with information. This was done through the successful MINITEL system. They have now published an *Explanatory Supplement to the Connaissance des Temps*. A web service was being developed (French and English), some sections were available (e.g. physical ephemeris of IO).

Rechen-Institut Schwan reported on "The Future of *Apparent Places of Fundamental Stars*". APFS has been published since 1941, and from 1960 this had been done by the RI. From 1988 it was computed from the final FK5 catalogue. The volume for the year 1999 will be published as before. However APFS was under increasing scrutiny. With the release of the Hipparcos catalogue the replacement of the FK5 is being considered. Certainly, apparent places for all Hipparcos stars will not be computed. The FK6 project is considering how to combine these catalogues. The problem arises due to the short period (3.5 years) of the Hipparcos mission, so many of the astrometric doubles have virtually 'instantaneous' proper motions. Thus for epochs 5 years from the mean Hipparcos epoch, the place will be computed on the basis of the FK5 proper motion (a mean motion for most stars), because it averages over about 200 years and will statistically provide better predictions that using the Hipparcos proper motions.

All remarks and suggestions and recommendations were welcome. Please send them to s25@ix.urz.uni-heidelberg.de.

Purple Mountain Observatory The Director of the Ephemeris Division had asked Seidelmann to read their report. They have four annual publications, an Astronomical Ephemeris, a Nautical Almanac, a Surveying Almanac, and an almanac with general information. They also have almanacs on various Chinese Calendars and they produce Solar/Lunar eclipse predications. There is an ephemeris software package for PCs MICE, and graphical software for eclipses and meridian passages.

US Naval Observatory Seidelmann reported that Paul Janiczek, head of Astronomical Applications Department, had retired, and they were in transition period. They had produced *The Astronomical Almanac*, *The Nautical Almanac*, *The Air Almanac*, *Astronomical Phenomena* each year; the software package MICA v 1.5 1990 - 2005 was available and MICA v 2.0, a major revision for Windows and Mac was being produced. There was other work for the Defense department, including a research into asteroids masses and ephemerides.

They are distributing a survey about *The Astronomical Almanac*. How much should be printed, should there be a CD-ROM companion, or should it be on the web. Other considerations; should the Moon polynomial coefficients be printed; what use was the satellite section? USNO had a satellite ephemeris package. Other questions concerned the minor planets, the stars and the observatory list? All comments were welcome.

The National Astronomical Observatory of Japan produces an Ephemeris of about 100 pages (free), but it is also part of a larger data book on natural science, which is produced commercially. The Hydrographic Office publish the *Japanese Ephemeris* and *Nautical Almanac*.

Jet Propulsion Laboratory Standish reported that they had a web page, from which people can get a table of ephemerides — like AsA, which was mainly used by professionals.

Message from the next president Standish said had been thinking about his role, he would be active through e-mail. We are now in the electronic age. He saw that the NAO's were facing problems. Professionals need access to ephemerides. There must be joint effort to provide them with the data they needed.