

29TH ANNUAL PRECISE TIME AND TIME INTERVAL (PTTI) SYSTEMS AND APPLICATIONS MEETING

Editor
Lee A. Breakiron
U.S. Naval Observatory

Proceedings of a meeting sponsored by
the U.S. Naval Observatory
the U.S. Naval Research Laboratory
NASA Headquarters
the NASA Jet Propulsion Laboratory
the Space and Naval Warfare Systems Command
the Air Force Office of Scientific Research
and the U.S. Air Force Space Command

and held at
The Sheraton Long Beach Hotel
Long Beach, California
2 — 4 December 1997



United States Naval Observatory
Washington, DC 20392-5420

1998

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TABLE OF CONTENTS

PTTI OPENING ADDRESS 1

**Dr. Joseph D. White, U.S. Naval Research Laboratory; and
Dr. Dennis D. McCarthy, U.S. Naval Observatory**

PTTI DISTINGUISHED SERVICE AWARD 3

**Presented by
Dr. Leonard S. Cutler
Hewlett-Packard Company
to
Prof. Bernard René Guinot
Paris Observatory**

SESSION I

INTERNATIONAL PTTI REPORTS

**Dr. Gerrit de Jong, Chairman
NMI Van Swinden Laboratorium**

Proposals for Updating TAI Algorithm
C. Thomas and J. Azoubib, Bureau International des Poids et Mesures . . 7

The Accuracy of TAI
C. Thomas, Bureau International des Poids et Mesures 19

SESSION II

NEW PRODUCTS FOR THE TIMING COMMUNITY

**Mr. Gary Geil, Chairman
Geil Marketing Associates**

Presentations were made by representatives of Absolute Time Corporation; Brandywine Communications; Datum, Inc.; EG&G Frequency Products; Femtosecond Systems; Guide Technology; Starlink, Inc.; 3S Navigation; TimeTech GmbH; TRAK Systems; TrueTime, Inc.; and WR, Inc.

Panel Discussion: Timing Systems

J. D. White, U.S. Naval Research Laboratory (moderator) 27

SESSION III

STANDARDS AND ANALYSIS

Dr. William J. Klepczynski, Chairman
Innovative Solutions International

**Relationships Between Drift Coefficient Uncertainties and Noise Levels:
Application to Time Error Prediction**

F. Vernotte and M. Vincent, Observatoire de Besançon, France 29

**Total Variance: A Progress Report on a New Frequency Stability
Characterization**

D. A. Howe, National Institute of Standards and Technology; and C. A.
Greenhall, Jet Propulsion Laboratory 39

Maintenance of HP 5071A Primary Frequency Standards at USNO

H. Chadsey and A. Kubik, U.S. Naval Observatory 49

**The SHM Hydrogen Atomic Clock for Space Applications: Development
and Test of the PEM Physics Package**

L. G. Bernier, A. Jornod, H. Schweda, R. Gentsch, and G. Busca,
Observatoire Cantonal de Neuchâtel, Switzerland 61

GPS Receivers and Relativity

M. Weiss, National Institute of Standards and Technology; and N. Ashby,
University of Colorado 69

**The CCTF Working Group on the Expression of Uncertainties in Primary
Frequency Standards**

R. J. Douglas, National Research Council of Canada; and C. Thomas,
Bureau International des Poids et Mesures 85

Total Variance as an Exact Analysis of the Sample Variance

D. B. Percival, University of Washington; and D. A. Howe, National
Institute of Standards and Technology 97

**Narrow-band Searches for Gravitational Radiation with Spacecraft
Doppler Tracking**

M. Tinto and J. W. Armstrong, Jet Propulsion Laboratory 107

POSTER SESSION

Mr. Jeffrey S. Ingold, Chairman
AlliedSignal Technical Services Corporation
(papers have been reassigned to Sessions III, IV, V, and VI)

SESSION IV

GPS APPLICATIONS

Mr. Marnius J. Van Melle, Chairman
Boeing North American Space Operations Company

- The 2 SOPS Ephemeris Enhancement Endeavor (EEE)**
Capt. J. D. Crum, USAF, 2nd Space Operations Squadron; S. T. Hutsell,
U.S. Naval Observatory Alternate Master Clock; and R. T. Smetek, Jr.,
Boeing North American Space Operations Company 117
- Refining Monitor Station Weighting in the GPS Composite Clock**
Lt. H. S. Mobbs, USAF, 2nd Space Operations Squadron; and S. T.
Hutsell, U.S. Naval Observatory Alternate Master Clock 131
- A New Approach to Ionospheric Delay Corrections in Single Frequency
GPS Receivers**
G. Mirena, V. Pettiti, F. Cordara, Istituto Elettrotecnico Nazionale
"Galileo Ferraris," Italy; and L. Ciruolo, Istituto di Ricerca sulle Onde
Elettromagnetiche "Nello Carrara," Italy 143
- Performance of the Kalman Filter of the Global Positioning System
Operational Control Segment during January - March 1997**
M. Weiss and A. Zarr, National Institute of Standards and Technology . 155
- Long-Term Evaluation of GPS Timing Receiver Failures**
D. Höchtl and U. Schmid, Technische Universität Wien, Austria 165
- SVN 20 End-Of-Life Frequency Standard Test Results**
Lt. R. E. Bower, USAF, 2nd Space Operations Squadron; G. L. Dieter, and
M. J. Van Melle, Boeing North American Space Operations Company . 181
- Absolute Time Error Calibration of GPS Receivers Using Advanced
GPS Simulators**
E. D. Powers and M. Miranian, U.S. Naval Observatory 193
- Atomic Frequency Standards for the GPS IIF Satellites**
W. Emmer and E. Watts, Boeing North American Space Operations
Company 201
- Early In-Orbit Performance of GPS Block IIR Rubidium Clocks**
W. J. Riley, EG&G Frequency Products 213

SESSION V

TIME TRANSFER TECHNIQUES

Ms. Lisa M. Nelson, Chairman
National Institute of Standards and Technology

- Time Transfer Using GPS Carrier Phase Methods**
K. M. Larson, University of Colorado; and J. Levine, National Institute of Standards and Technology 221
- GLONASS/GPS Time Transfer and the Problem of the Determination of Receiver Delays**
G. de Jong, NMI van Swinden Laboratorium; and W. Lewandowski, Bureau International des Poids et Mesures 229
- Delay Stability of the TWSTFT Earth Station at VSL**
G. de Jong, NMI van Swinden Laboratorium, the Netherlands 241
- C- and Ku-Band Two-Way Satellite Time Transfer Comparison Experiment**
R. Beard, I. Galysh, J. Oaks, M. Largay, P. Landis, W. Reid, U.S. Naval Research Laboratory; M. Ehnert, R. Eisenhauer, USAF, Space and Missile Systems Center; W. Hanson, L. Nelson, A. Clements, National Institute of Standards and Technology; J. Durden, L. Brownhill, Comlink, Inc.; J. Wright, C. Duffy, Computer Sciences Raytheon; J. Kasik, COMSAT; and J. Buisson, Antoine Enterprises, Inc. 253
- An Operational TWSTT Monitoring System**
P. Mai and J. DeYoung, U.S. Naval Observatory 265

SESSION VI

MULTI-CHANNEL GPS APPLICATIONS

Dr. Robert J. Douglas, Chairman
National Research Council of Canada

- Common-View Time Transfer Using Multi-Channel GPS Receivers**
L. Schmidt and M. Miranian, U.S. Naval Observatory 269
- Multi-Channel vs. Common-View GPS Frequency Transfer Comparison in the Asia-Pacific Region**
P. T. H. Fisk, M. A. Lawn, S. Quigg, J. S. Thorn, National Measurement Laboratory, Australia; T. Armstrong, Measurement Standards Laboratory of New Zealand; J. McK. Luck, J. R. Woodger, Orroral Geodetic Observatory, Australia; and M. M. Ruiz, Industrial Technology Development Institute, Philippines 277

On Improvements Of and Suggestions About GPS "Common-View" with Multi-Channel Time Receivers - First Results
 J. Hahn, H. Nau, Institut für Hochfrequenztechnik, Germany; and P. Moussay, Bureau International des Poids et Mesures 287

A New Approach to Common-View Time Transfer Using "All-In-View" Multi-Channel GPS and GLONASS Observations
 J. Azoubib, W. Lewandowski, Bureau International des Poids et Mesures; G. de Jong, NMi van Swinden Laboratorium, the Netherlands; and J. Danaher, 3S Navigation 299

Multi-Channel GPS Common-View Time Transfer Experiments: First Results and Uncertainty Study
 G. Petit, C. Thomas, P. Moussay, Bureau International des Poids et Mesures; J. A. Davis, National Physical Laboratory, UK; M. Miranian, U.S. Naval Observatory; and J. Palacio, Real Instituto y Observatorio de la Armada, Spain 309

Time Transfer with GPS Multi-Channel Motorola Oncore Receiver Using CCDS Standards
 J. Nawrocki, Astrogeodynamical Observatory, Poland; W. Lewandowski, and J. Azoubib, Bureau International des Poids et Mesures 319

SESSION VII

INTERNATIONAL TIMING AND SYNCHRONIZATION

Dr. Claudine Thomas, Chairman
Bureau International des Poids et Mesures

A Study Examining the Possibility of Obtaining Traceability to UK National Standards of Time and Frequency Using GPS-Disciplined Oscillators
 J. A. Davis and J. M. Furlong, National Physical Laboratory, UK 329

SESSION VIII

RANGE AND TIMING COUNTDOWN

Mr. Bruce Proctor
U.S. Army Yuma Proving Ground

Utilization of the Global Positioning System (GPS) for Timing Systems Under Range Standardization & Automation Phase-IIA Program
 M. C. Lee, Lockheed Martin Space Mission Systems & Services 345

The WSMR Timing System: Approaching the Horizon W. A. Gilbert, White Sands Missile Range	357
--	-----

SESSION IX

**NETWORK AND TELECOMMUNICATIONS
TIMING AND SYNCHRONIZATION**

Mr. Richard E. Schmidt, Chairman
U.S. Naval Observatory

Internet Timekeeping Around the Globe D. L. Mills, A. Thyagarjan; and B. C. Huffman, University of Delaware ..	365
SIPRNET Network Time Service R. E. Schmidt, U.S. Naval Observatory	373
The Application of NTP to Navy Platforms K. F. O'Donoghue and D. T. Marlow, Naval Surface Warfare Center ...	381
Benefits and Issues on the Integration of GPS with a Wireless Communications Link R. DiEsposti, S. Saks, L. Jovic, The Aerospace Corporation; and J. Kayloe, USAF, Space and Missile Center	391
Panel Discussion: Time Rollover Events: Year 2000 (Y2K), GPS Week 1024, Leap Second, and Leap Year J. Levine, National Institute of Standards and Technology (moderator) .	399

SESSION X

FIBER OPTIC TIMING APPLICATIONS

Mr. Malcolm D. Calhoun, Chairman
Jet Propulsion Laboratory

Long-Term Time Transfer Stability of a Fiber Optic Link O. Buzek, Czech Institute of Radio Engineering and Electronics	405
Two-Way Time Transfer Through 2.4 Gbit/s Optical SDH System M. Kihara, A. Imaoka, NTT Optical Network Systems Laboratories, Japan; M. Imae and K. Imamura, Communications Research Laboratory, Japan	415

Results from Proof-Of-Concept Time-Based Communications Testing T. P. Celano, S. R. Stein, Timing Solutions Corporation; G. A. Gifford, U.S. Naval Observatory; E. A. Swanson, B. R. Hemenway, Jr., and J. C. Carney, MIT Lincoln Laboratory	423
List of Attendees	435

PTTI OPENING ADDRESS: THE FUTURE OF THE PTTI MEETING

**Joseph D. White
U.S. Naval Research Laboratory
Washington, DC 20375**

**Dennis D. McCarthy
U.S. Naval Observatory
Washington, DC 20392**

At the meeting of the PTTI Executive Committee on 30 January 1997, it was decided that the following principles would be implemented in the planning of all future PTTI Meetings:

- The purpose of the PTTI Meeting is to inform users about state-of-the-art capabilities in PTTI and inform government system managers and engineers and sponsoring agencies about new opportunities, programs, and technical challenges requiring PTTI.
- To emphasize the fact that system managers and engineers comprise the majority of the attendees desired, the meeting name has been changed from "The Precise Time and Time Interval Applications and Planning Meeting" to "The Precise Time and Time Interval Systems and Applications Meeting."
- The PTTI Meeting is and will remain an open meeting. This means that it will not be by invitation only. It will be advertised widely and vendors will always be able to participate.
- The PTTI Meeting will be managed more aggressively with regard to its program. A theme and a "matching" Program Committee chair will be selected for each meeting; papers not appropriate to the theme will be rejected. The Program Committee will recruit invited papers and arrange discussions and workshops in keeping with the theme. Details of the mechanics of the meeting organization will be left to the Program Committee, but the program must be approved by the Executive Committee. Each sponsoring agency will have the option of naming a representative to the Program Committee. Classified sessions may be arranged if appropriate. The meeting should be no longer than 3 days in length.
- The PTTI Meeting will continue as an annual meeting independent of other meetings, but the Executive Committee shall have the option to plan joint meetings if it feels that a joint meeting would contribute positively to the theme of the PTTI Meeting.

PTTI DISTINGUISHED SERVICE AWARD

Presented to
Prof. Bernard René Guinot
Honorary Astronomer
Paris Observatory
by

Dr. Leonard S. Cutler
Hewlett-Packard Co.

It is again a particular honor and a great pleasure for me to help recognize past achievements in the time and frequency arena. I am very happy, with inputs from Dr. Claudine Thomas, to do this for Bernard Guinot, a distinguished scientist, astronomer, and friend for many years. I am certain everyone agrees that he is very well qualified to receive this award, as evidenced by an impressive list of important contributions, accomplishments, and awards.

Bernard was born in Livarot, France, in 1925. From 1945 to 1952, he was an Officer in the Merchant Navy. In 1946-47, he was on a small freighter in the Far East with a Chinese crew. The ship's radio officer was drunk 24 hours a day and, for a full year, was not able to get a single time signal. This is where Bernard had his first contact with time determination and comparison. He did this by astronomical determination of Universal Time at sea in view of the coast, clock transportation to nearby ships in a harbor, and even synchronization by light signals with ships upon the open sea. This was an early, and very practical, introduction for him to clock synchronization. Later, on more comfortable ships, he resumed his studies in mathematics, thus gaining respect from some of the captains, but also some complaints about not being seen enough among the passengers.

Bernard says that, probably because he was a seaman, the Director of the Paris Observatory, A. Danjon, recruited him to be his assistant in 1952. His first scientific work was to make determinations of Universal Time and latitude by observing the altitude of stars with an astrolabe, invented by Danjon, enabling 1,000 times less uncertainty than with a sextant. The nighttime observations in the open air were often very uncomfortable and sometimes disappointing, as was the case when, after a full winter night of data-taking, Bernard discovered that the janitorial staff had thrown the chronograph tape away.

In 1958, while at the Observatory, he received his Doctor's degree. While there from 1952 to 1984, his title was Astronomer, Paris Observatory. During that time he had two books published: *The Measurement of Time* and *The Equal Altitude Method in Astronomy*.

From 1984 to 1992, he was Physicist, Bureau International des Poids et Mesures. He retired from the BIPM in 1992 and, since then, has been Honorary Astronomer, Paris Observatory. Recently he has written, with Claude Audoin, a third book, *Fundamentals of the Measurement of Time*, to be published in December, 1997.

Some of his accomplishments include:

- Determination of star position by a new method, the equal altitude method, using astrolabes
- Studies and determination of the astronomical constants of aberration and nutation
- Relativistic definition of reference systems
- Introduction of a new concept, the non-rotating origin, allowing a rigorous definition of the earth's rotation about the moving rotation axis
- Work in many aspects of earth rotation and geodesy, including the definition of Universal Time
- Creation of International Atomic Time, TAI, including:
 - Organization of the network of contributing clocks and time comparisons
 - Establishment of stability and accuracy algorithms
 - Organization of TAI dissemination
 - Relativistic definition of TAI
- Promotion of the UTC system and the introduction of a mathematical relation between UTC and TAI
- Transfer of the activities on TAI to the BIPM.

Bernard considers his creation of TAI and the concept of the non-rotating origin his most important contributions. He is presently working on applications of general relativity to fundamental astronomy, geodesy, and metrology and continuation of his research on the non-rotating origin.

His affiliations and awards include:

- Corresponding Member, French Academy of Sciences
- Member, Bureau des Longitudes (President, 1984-1986)
- Member, Academia Europaea
- Prix du Commissariat de l'Énergie Atomique (1991)
- Tompion Gold Medal of the Worshipful Company of Clockmakers, London (1997)
- Prix Émile Girardeau, Académie de Marine (1991) (This was very pleasing to Bernard, the former sailor.).

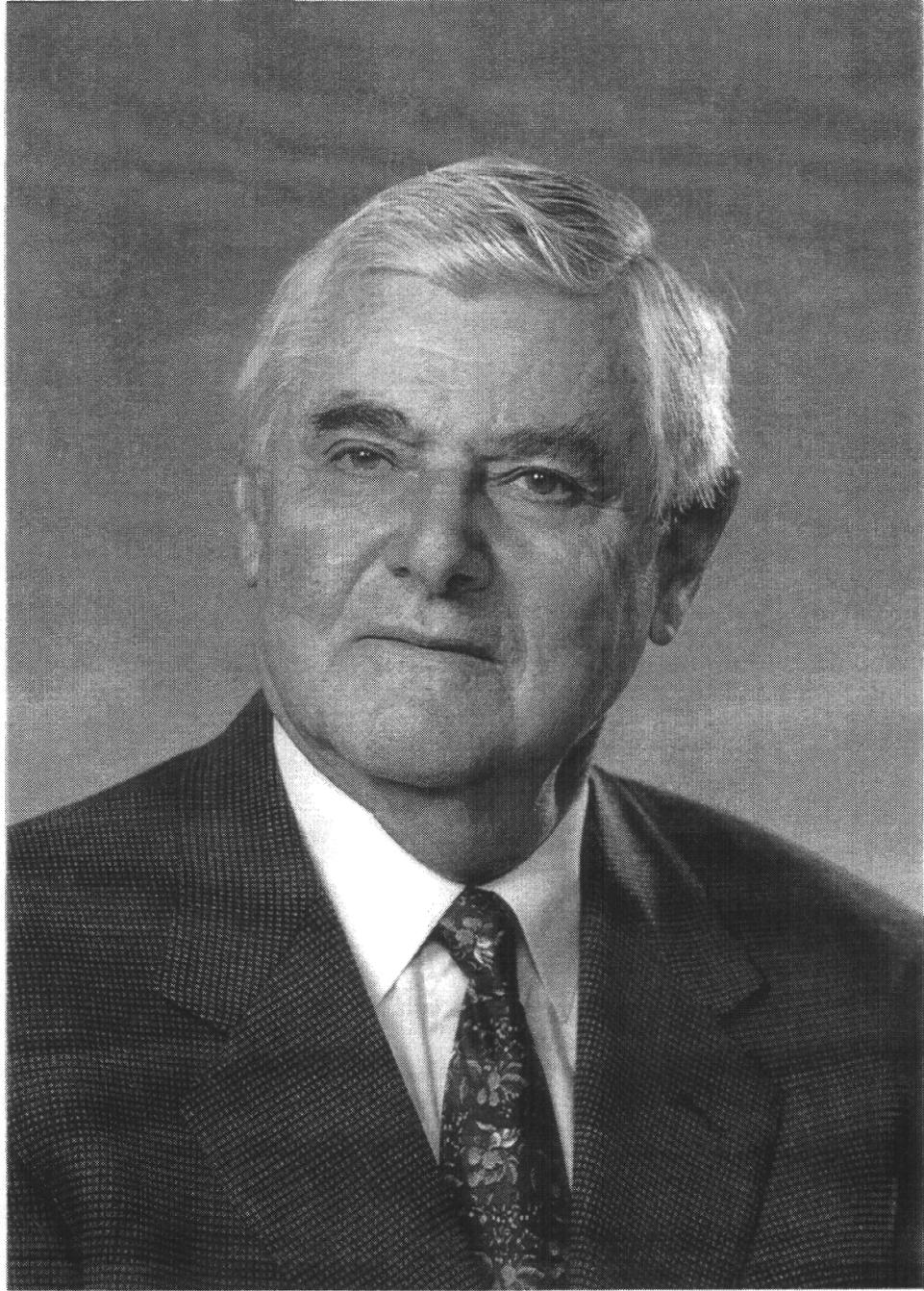
Bernard's interests include diving and, not surprisingly, sailing. One time he was invited to attend a meeting on time dissemination at the Cagliari University, Italy. To get there he rented a sailboat and spent five days navigating from France to Cagliari. This caused some complications for the reimbursement of travel expenses.

Once, when arriving in New York coming from France, he was going through immigration and got to a severe-looking customs officer who examined his passport with a frown. He

motioned Bernard to follow him. They went to the office and Bernard, expecting a search, was discouraged. The officer then said his first words: "What do you think about black holes?" He had seen "Astronomer" on the passport.

Bernard has clearly made many important contributions to astronomy, physics, and the time and frequency community. He is a capable, dedicated, and highly productive individual as well as being a fine person.

With great pleasure we now give him his award and express our congratulations and appreciation for his outstanding contributions and service to our community. Bernard, will you please come up?



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