

# PROCEEDINGS OF SPIE

## ***Observatory Operations: Strategies, Processes, and Systems II***

**Roger J. Brissenden**  
**David R. Silva**  
*Editors*

**24–26 June 2008**  
**Marseille, France**

Sponsored by  
SPIE  
SPIE Europe

*Cooperating Organizations*  
AAS—American Astronomical Society (USA) • ASJ—Astronomical Society of Japan (Japan)  
AURA—Association of Universities for Research in Astronomy, Inc. (USA) • Ball Aerospace & Technologies Corporation (USA) • CNRS—Centre National de la Recherche Scientifique (France) • EAS—European Astronomical Society (Switzerland) • ESO—European Southern Observatory (Germany) • IAU—International Astronomical Union (France) • INSU—Institut National des Sciences de l'Univers (France) • LAM—Laboratoire d'Astrophysique de Marseille (France) • MPE—Max-Planck-Institut für extraterrestrische Physik (Germany)  
NAOJ—National Astronomical Observatory of Japan (Japan) • NASA—NASA Goddard Space Flight Center (USA) • Northrop Grumman Corporation (USA) • OAMP—Observatoire Astronomique de Marseille Provence (France) • OPTICON—Optical Infrared Coordination Network (United Kingdom) • RadioNet—Advanced Radio Astronomy in Europe (United Kingdom) • Royal Astronomical Society (United Kingdom) • Science & Technology Facilities Council (United Kingdom) • SFO—Société Française d'Optique (France)  
Competitiveness Cluster: POPsud-Pôle Optique & Photonique (France) • Optitec Sud (France)

*Published by*  
SPIE

**Volume 7016**

Proceedings of SPIE, 0277-786X, v. 7016

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

The papers included in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. The papers published in these proceedings reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from this book:

Author(s), "Title of Paper," in *Observatory Operations: Strategies, Processes, and Systems II*, edited by Roger J. Brissenden, David R. Silva, Proceedings of SPIE Vol. 7016 (SPIE, Bellingham, WA, 2008) Article CID Number.

ISSN 0277-786X  
ISBN 9780819472267

Published by  
**SPIE**  
P.O. Box 10, Bellingham, Washington 98227-0010 USA  
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445  
SPIE.org

Copyright © 2008, Society of Photo-Optical Instrumentation Engineers

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at [copyright.com](http://copyright.com). Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/08/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.



[SPIEDigitalLibrary.org](http://SPIEDigitalLibrary.org)

---

**Paper Numbering:** Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print and on CD-ROM. Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc.

The CID number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages. Numbers in the index correspond to the last two digits of the six-digit CID number.

# Contents

xiii	Conference Committee
xv	<i>Introduction</i>

---

## PLENARY SESSION

---

- 7016 02 **High redshift galaxy surveys** [7016-500]  
M. Iye, National Astronomical Observatory of Japan (Japan)

---

### SESSION 1 GENERAL OPERATIONS I

---

- 7016 03 **W. M. Keck Observatory operations** [7016-01]  
H. A. Lewis, R. H. Matsuda, W. M. Keck Observatory (United States)
- 7016 04 **AO operations at the W. M. Keck Observatory** [7016-02]  
R. D. Campbell, D. Le Mignant, M. A. van Dam, A. Conrad, K. Grace, M. Kassis, J. E. Lyke, H. Tran, J. C. Y. Chin, E. Chock, S. Doyle, R. W. Goodrich, E. M. Johansson, T. Krasuski, C. Melcher, D. M. Summers, R. C. Sumner, P. L. Wizinowich, W. M. Keck Observatory (United States)
- 7016 05 **La Silla Paranal Observatory operations** [7016-03]  
A. Kaufer, European Southern Observatory (Chile)
- 7016 06 **Maintenance management at La Silla Paranal Observatory** [7016-04]  
N. Montano, European Southern Observatory (Chile)
- 7016 08 **Overview of engineering activities at the SMA** [7016-06]  
R. D. Christensen, Smithsonian Submillimeter Array (United States); D. Y. Kubo, R. Rao, Academia Sinica, Institute of Astronomy & Astrophysics (United States)
- 7016 09 **Magellan Telescopes operations 2008** [7016-07]  
D. J. Osip, M. M. Phillips, P. Palunas, F. Perez, M. Leroy, Carnegie Observatories, Las Campanas Observatory (Chile)

---

### SESSION 2 GENERAL OPERATIONS II

---

- 7016 0A **Commissioning and early operations of the Large Binocular Telescope** [7016-08]  
R. F. Green, J. M. Hill, J. H. Slagle, J. Brynnel, N. J. Cushing, R. M. Wagner, M. Pedani, D. Thompson, Large Binocular Telescope Observatory (United States)

7016 0B	<b>Lessons learned from Sloan Digital Sky Survey operations</b> [7016-09] S. J. Kleinman, Gemini Observatory (United States); J. E. Gunn, Princeton Univ. (United States); B. Boroski, Fermi National Accelerator Lab. (United States); D. Long, S. Snedden, Apache Point Observatory (United States); A. Nitta, Gemini Observatory (United States); J. Krzesiński, Akademia Pedagogiczna w Krakowie (Poland); M. Harvanek, Lowell Observatory (United States); E. Neilsen, Fermi National Accelerator Lab. (United States); B. Gillespie, Apache Point Observatory (United States); J. C. Barentine, Univ. of Texas (United States); A. Uomoto, Observatories of the Carnegie Institution of Washington (United States); D. Tucker, Fermi National Accelerator Lab. (United States); D. York, Univ. of Chicago (United States); S. Jester, Max-Planck-Institut für Astronomie (Germany)
7016 0C	<b>Spitzer Science operations: the good, the bad, and the ugly</b> [7016-10] D. A. Levine, Spitzer Space Telescope Science Ctr., California Institute of Technology (United States)
7016 0D	<b>Spitzer's model for dealing with the end of the cryogenic mission</b> [7016-11] S. R. Dodd, L. Storrie-Lombardi, Spitzer Science Ctr., California Institute of Technology (United States); C. P. Scott, Jet Propulsion Lab. (United States)
7016 0E	<b>James Webb Space Telescope: applying lessons learned to I&amp;T</b> [7016-12] A. Johns, B. Seaton, J. Gal-Edd, NASA Goddard Space Flight Ctr. (United States); R. Jones, ASRC, NASA Goddard Space Flight Ctr. (United States); C. Fatig, SAIC, NASA Goddard Space Flight Ctr. (United States); F. Wasiak, General Dynamics Corp., NASA Goddard Space Flight Ctr. (United States)
7016 0F	<b>Thirty Meter Telescope: current operations concepts and plans</b> [7016-13] D. R. Silva, AURA, Thirty Meter Telescope (United States)
7016 0G	<b>Running PILOT: operational challenges and plans for an Antarctic Observatory</b> [7016-14] A. McGrath, W. Saunders, P. Gillingham, D. Ward, Anglo-Australian Observatory (Australia); J. Storey, J. Lawrence, Univ. of New South Wales (Australia); R. Haynes, Anglo-Australian Observatory (Australia)
7016 0H	<b>Small IRAIT: telescope operations during the polar night</b> [7016-15] R. Briguglio, Sapienza Univ. of Rome (Italy); G. Tosti, M. Busso, M. Bagaglia, G. Nucciarelli, A. Mancini, S. Castellini, Univ. of Perugia (Italy); K. G. Strassmeier, Astrophysikalisches Institut Potsdam (Germany); O. Straniero, Teramo Observatory (Italy); L. Sabbatini, Univ. of Roma 3 (Italy)

---

**SESSION 3    DATA MANAGEMENT AND QUALITY CONTROL**

---

7016 0J	<b>The evolving role of a data centre in support of observatory operations and community needs</b> [7016-17] S. Gaudet, D. Durand, D. Schade, National Research Council Canada, Herzberg Institute of Astrophysics (Canada)
---------	--

7016 0L	<b>The Dark Energy Survey data management system</b> [7016-19] J. J. Mohr, Univ. of Illinois (United States) and National Ctr. for Supercomputing Applications (United States); D. Adams, National Ctr. for Supercomputing Applications (United States); W. Barkhouse, Univ. of North Dakota (United States); C. Beldica, National Ctr. for Supercomputing Applications (United States); E. Bertin, Institut d'Astrophysique de Paris (France); Y. D. Cai, National Ctr. for Supercomputing Applications (United States); L. A. N. da Costa, Observatorio Nacional (Brazil); J. A. Darnell, Univ. of Illinois (United States); G. E. Daues, National Ctr. for Supercomputing Applications (United States); M. Jarvis, Univ. of Pennsylvania (United States); M. Gower, National Ctr. for Supercomputing Applications (United States); H. Lin, Fermi National Accelerator Lab. (United States); L. Martelli, Observatorio Nacional (Brazil); E. Neilsen, Fermi National Accelerator Lab. (United States); C.-C. Ngeow, Univ. of Illinois (United States); R. L. C. Ogando, Observatorio Nacional (Brazil); A. Parga, National Ctr. for Supercomputing Applications (United States); E. Sheldon, New York Univ. (United States); D. Tucker, N. Kuropatkin, C. Stoughton, Fermi National Accelerator Lab. (United States)
7016 0M	<b>STARS 2.0: 2nd-generation open-source archiving and query software</b> [7016-20] T. Winegar, Subaru Telescope (United States)
7016 0N	<b>Operating a petabyte class archive at ESO</b> [7016-21] D. Suchar, J. S. Lockhart, A. Burrows, European Southern Observatory (Germany)
7016 0O	<b>NRAO VLA archive survey</b> [7016-22] J. H. Crossley, L. O. Sjouwerman, E. B. Fomalont, N. M. Radziwill, National Radio Astronomy Observatory (United States)
7016 0P	<b>How to handle calibration uncertainties in high-energy astrophysics</b> [7016-23] V. L. Kashyap, H. Lee, A. Siemiginowska, J. McDowell, A. Rots, J. Drake, P. Ratzlaff, A. Zezas, Harvard-Smithsonian Ctr. for Astrophysics (United States); R. Izem, Harvard Univ. (United States); A. Connors, Eureka Scientific (United States); D. van Dyk, Univ. of California, Irvine (United States); T. Park, Univ. of Pennsylvania (United States)
7016 0Q	<b>Scoring: a novel approach toward automated and reliable certification of pipeline products</b> [7016-24] R. W. Hanuschik, M. Neeser, W. Hummel, B. Wolff, European Southern Observatory (Germany)
7016 0R	<b>Detector monitoring as part of VLT science and data flow operations</b> [7016-25] W. Hummel, European Southern Observatory (Germany); L. de Bilbao, European Southern Observatory (Germany), Fundación Española para la Ciencia y la Tecnología (Spain), and Instituto de Física de Cantabria (Spain); A. Modigliani, L. Lundin, European Southern Observatory (Germany); P. Amico, European Southern Observatory (Chile); P. Ballester, European Southern Observatory (Germany); G. LoCurto, European Southern Observatory (Chile); L. Vanzi, European Southern Observatory (Chile) and Pontificia Univ. Católica de Chile (Chile)
7016 0S	<b>Solutions for quality control of multi-detector instruments and their application to CRIRES and VIMOS</b> [7016-26] B. Wolff, R. W. Hanuschik, W. Hummel, M. Neeser, European Southern Observatory (Germany)

---

**SESSION 4 OBSERVATORY SCHEDULING**

---

- 7016 0U **SkyProbeBV: dual-color absolute sky transparency monitor to optimize science operations** [7016-28]  
J.-C. Cuillandre, Canada-France-Hawaii Telescope Corp. (United States); E. Magnier, Institute for Astronomy (United States); D. Sabin, B. Mahoney, Canada-France-Hawaii Telescope Corp. (United States)
- 7016 0V **Gemini queue planning** [7016-29]  
B. W. Miller, Gemini Observatory (Chile); R. Norris, Reasoning Systems LLC (United States)
- 7016 0W **Chandra mission scheduling on-orbit experience** [7016-31]  
S. Bucher, B. Williams, M. Pendexter, D. Balke, Northrop Grumman Space Technology (United States)

---

**SESSION 5 USER SUPPORT**

---

- 7016 0Y **Operating a wide-area remote observing system for the W. M. Keck Observatory** [7016-33]  
G. D. Wirth, W. M. Keck Observatory (United States); R. I. Kibrick, UCO/Lick Observatory, Univ. of California, Santa Cruz (United States); R. W. Goodrich, J. E. Lyke, W. M. Keck Observatory (United States)
- 7016 0Z **Users' feedback: What is "good enough"?** [7016-34]  
F. Primas, S. Marteau, F. Patat, European Southern Observatory (Germany)
- 7016 10 **ESO's User Portal: lessons learned** [7016-35]  
A. M. Chavan, L. E. Tacconi-Garman, M. Peron, F. Sogni, D. Dorigo, P. Nass, N. Fourniol, D. Sforza, K. Haggouche, M. Dolensky, European Southern Observatory (Germany)
- 7016 11 **European ALMA operations: the interaction with and support to the users** [7016-36]  
P. Andreani, M. Zwaan, European Southern Observatory (Germany)

---

**SESSION 6 OPERATIONAL PROCESS**

---

- 7016 12 **End-to-end operations at the National Radio Astronomy Observatory** [7016-37]  
N. M. Radziwill, National Radio Astronomy Observatory (United States)
- 7016 13 **Subaru Telescope Network III (STN-III): more effective, more operation-oriented, and more inexpensive solutions for the observatory's needs** [7016-38]  
J. Noumaru, J. A. Kawai, K. Schubert, Subaru Telescope, National Astronomical Observatory of Japan (United States); M. Yagi, T. Takata, National Astronomical Observatory of Japan (Japan); T. Winegar, T. Scanlon, Subaru Telescope, National Astronomical Observatory of Japan (United States); T. Nishida, C. Fox, J. Hayasaka, J. Forester, K. Uchida, I. Nakamura, R. Tom, Fujitsu America, Inc. (United States); N. Koura, T. Yamamoto, Fujitsu Ltd. (Japan); T. Tanoue, Fujitsu Computer Systems Corp. (Japan); T. Yamada, Tohoku Univ. (Japan)
- 7016 14 **Future perfect: optimal observing and data reduction strategies** [7016-39]  
M. Horrobin, Astronomical Institute Anton Pannekoek, Univ. of Amsterdam (Netherlands)

- 7016 15 **Magdalena Ridge Observatory: the start-up of a new observatory** [7016-40]  
E. J. Bakker, D. Westpfahl, G. Loos, New Mexico Tech, Magdalena Ridge Observatory (United States)
- 7016 16 **Project tracking at the Submillimeter Array: from proposals to publication** [7016-41]  
C. Katz, G. Petritis, M. Gurwell, Harvard-Smithsonian Ctr. for Astrophysics (United States); A. Peck, Joint ALMA Office (Chile); D. Wilner, Harvard-Smithsonian Ctr. for Astrophysics (United States)

---

**SESSION 7 OPERATIONAL STATISTICS**

---

- 7016 17 **Duty cycle metrics system for the W. M. Keck Observatory** [7016-42]  
R. W. Goodrich, S. H. Kwok, W. M. Keck Observatory (United States)
- 7016 18 **The NASA/IPAC Infrared Science Archive (IRSA) as a resource in supporting observatory operations** [7016-44]  
G. B. Berriman, California Institute of Technology (United States)
- 7016 19 **Maximizing scientific return for the Hubble Space Telescope in a post-SM4 world** [7016-45]  
D. S. Adler, W. M. Workman III, Computer Sciences Corp. (United States) and Space Telescope Science Institute (United States)
- 7016 1A **Scientific productivity and impact of large telescopes** [7016-46]  
D. R. Crabtree, Gemini Observatory (Chile)

---

**POSTERS: DATA MANAGEMENT AND QUALITY CONTROL**

---

- 7016 1B **ESO scalable architecture for operational databases** [7016-47]  
I. Vera, A. Dobrzycki, A. M. Chavan, P. Nass, J. S. Lockhart, European Southern Observatory (Germany)
- 7016 1C **Advanced load-testing techniques for a science archive** [7016-48]  
M. Legassie, Raytheon Information Solutions (United States); L. Bennett, Spitzer Science Ctr., California Institute of Technology (United States); S. Comeau, Raytheon Information Solutions (United States); S. Dodd, Spitzer Science Ctr., California Institute of Technology (United States)
- 7016 1D **James Webb Space Telescope: I2 communications for science data processing** [7016-49]  
A. Johns, B. Seaton, J. Gal-Edd, NASA Goddard Space Flight Ctr. (United States); R. Jones, ASRC, NASA Goddard Space Flight Ctr. (United States); C. Fatig, SAIC, NASA Goddard Space Flight Ctr. (United States); F. Wasiak, General Dynamics Corp., NASA Goddard Space Flight Ctr. (United States)
- 7016 1E **Design and realization of survey strategy system** [7016-50]  
H.-L. Yuan, J. Ren, J. Wang, G. Jin, H.-T. Zhang, Univ. of Science and Technology of China (China)

- 7016 1F **Hyper Suprime-Cam: data analysis and management system** [7016-51]  
H. Furusawa, Subaru Telescope, National Astronomical Observatory of Japan (United States); M. Tanaka, Y. Yasu, S. Y. Suzuki, R. Itoh, N. Katayama, High Energy Accelerator Research Organization (Japan); Y. Komiya, S. Miyazaki, National Astronomical Observatory of Japan (Japan); Y. Utsumi, National Astronomical Observatory of Japan (Japan) and Graduate Univ. for Advanced Studies (Japan); T. Uchida, H. Aihara, Univ. of Tokyo (Japan); N. Yasuda, Institute for Cosmic Ray Research, Univ. of Tokyo (Japan)
- 7016 1G **Building up a database of spectro-photometric standard stars from the UV to the near-IR: a status report** [7016-52]  
J. Vernet, F. Kerber, F. Saitta, V. Mainieri, S. D'Odorico, European Southern Observatory (Germany); C. Lidman, E. Mason, European Southern Observatory (Chile); R. C. Bohlin, Space Telescope Science Institute (United States); T. Rauch, Institute for Astronomy and Astrophysics, Eberhard Karls Univ. (Germany); V. D. Ivanov, A. Smette, European Southern Observatory (Chile); J. R. Walsh, R. A. E. Fosbury, Space Telescope-European Coordinating Facility (Germany); P. Goldoni, Service d'Astrophysique, Ctr. d'Etudes de Saclay (France); P. Groot, Radboud Univ. Nijmegen (Netherlands); F. Hammer, Observatoire de Paris (France); M. Horrobin, L. Kaper, Astronomical Institute Anton Pannekoek, Univ. van Amsterdam (Netherlands); P. Kjærgaard-Rasmussen, Niels Bohr Institute for Astronomy (Denmark); R. Pallavicini, INAF-Osservatorio Astronomico di Palermo Giuseppe S. Vaiana (Italy); F. Royer, Observatoire de Paris (France)
- 7016 1H **New measures in controlling quality of VLT VISIR** [7016-53]  
D. Dobrzycka, European Southern Observatory (Germany); L. Vanzi, European Southern Observatory (Chile) and Pontificia Univ. Católica de Chile (Chile); L. Lundin, H. U. Kaeufl, R. Siebenmorgen, European Southern Observatory (Germany)
- 7016 1I **Reduction of polarimetric data using Mueller calculus applied to Nasmyth instruments** [7016-54]  
F. Joos, E. Buenzli, H. M. Schmid, C. Thalmann, Institut für Astronomie, ETH Zürich (Switzerland)
- 7016 1J **Changing software philosophy for ACIS operations as Chandra ages** [7016-55]  
N. R. Adams-Wolk, P. P. Plucinsky, J. DePasquale, Harvard-Smithsonian Ctr. for Astrophysics (United States)
- 7016 1L **Data taking in Virtual Control Room: the SNfactory example** [7016-57]  
P. Antilogus, Lab. de Physique Nucléaire et des Hautes Energies, CNRS, Univ. Paris VI et Paris VII (France); R. C. Thomas, G. Aldering, C. Aragon, Lawrence Berkeley National Lab. (United States); Y. Copin, E. Gangler, Institut de Physique Nucléaire de Lyon, CNRS-IN2P3, Univ. Claude Bernard Lyon1 (France); E. Hornero, Lab. de Physique Nucléaire et des Hautes Energies, CNRS, Univ. Paris VI et Paris VII (France); A. Pecontal, Ctr. de Recherche Astronomique de Lyon (France); S. Poon, K. Runge, Lawrence Berkeley National Lab. (United States); R. Scalzo, Yale Univ. (United States); S. Bailey, Lab. de Physique Nucléaire et des Hautes Energies, CNRS, Univ. Paris VI et Paris VII (France); C. Baltay, Yale Univ. (United States); C. Buton, Institut de Physique Nucléaire de Lyon, CNRS-IN2P3, Univ. Claude Bernard Lyon1 (France); S. Bongard, Lawrence Berkeley National Lab. (United States) and Univ. of California, Space Sciences Lab. (United States); M. Childress, S. Loken, P. Nugent, Lawrence Berkeley National Lab. (United States); R. Pain, Lab. de Physique Nucléaire et des Hautes Energies, CNRS, Univ. Paris VI et Paris VII (France); E. Pecontal, Ctr. de Recherche Astronomique de Lyon (France); R. Pereira, Lawrence Berkeley National Lab. (United

States); S. Perlmutter, Lawrence Berkeley National Lab. (United States) and Univ. of California, Berkeley (United States); D. Rabinowitz, Yale Univ. (United States); G. Rigaudier, Ctr. de Recherche Astronomique de Lyon (France); G. Smadja, Institut de Physique Nucléaire de Lyon, CNRS-IN2P3, Univ. Claude Bernard Lyon1 (France); C. Tao, Ctr. de Physique des Particules de Marseille IN2P3, CNRS, Univ. de la Méditerranée (France); C. Wu, Lab. de Physique Nucléaire et des Hautes Energies, CNRS, Univ. Paris VI et Paris VII (France)

- 7016 1M **Applications of the ESO metadata database** [7016-58]  
M. Vuong, A. Brion, A. Dobrzycki, J.-C. Malapert, C. Moins, European Southern Observatory (Germany)
- 7016 1N **The WISE in-orbit calibration** [7016-59]  
B. Fabinsky, I. Heinrichsen, A. Mainzer, P. Eisenhardt, Jet Propulsion Lab. (United States)
- 7016 1O **Planning and developing the Chandra Source Catalog** [7016-60]  
I. N. Evans, J. D. Evans, G. Fabbiano, K. J. Glotfelty, M. L. McCollough, J. C. McDowell, F. A. Primini, A. H. Rots, Smithsonian Astrophysical Observatory (United States)

---

#### **POSTERS: GENERAL OPERATIONS**

- 7016 1P **Evaluating requirements on the Spitzer Mission operations system based on flight operations experience** [7016-61]  
M. A. Sarrel, J. C. Hunt, Jr., Jet Propulsion Lab. (United States)
- 7016 1Q **The Gemini-South MCAO operational model: insights on a new era of telescope operation** [7016-62]  
G. Tranco, M. Bec, E. Artigau, C. d'Orgeville, D. Gratadour, F. J. Rigaut, Gemini Observatory Southern Operations Ctr. (Chile); B. Walls, Gemini Observatory Northern Operations Ctr. (United States)
- 7016 1R **Service observing management at the APEX telescope** [7016-63]  
M. Dumke, European Southern Observatory (Chile)
- 7016 1S **Operating the GONG worldwide network** [7016-64]  
P. A. Eliason, National Solar Observatory (United States)
- 7016 1T **Improving the Wendelstein Observatory for a 2m-class telescope** [7016-65]  
U. Hopp, R. Bender, Univ.-Sternwarte, Ludwig-Maximilians Univ. München (Germany), Observatorium Wendelstein (Germany), and Max-Planck-Institut für Extraterrestrische Physik (Germany); C. Goessl, W. Mitsch, H. Barwig, A. Riffeser, F. Lang, S. Wilke, C. Ries, Univ.-Sternwarte, Ludwig-Maximilians Univ. München (Germany) and Observatorium Wendelstein (Germany); F. Grupp, Univ.-Sternwarte, Ludwig-Maximilians Univ. München (Germany) and Max-Planck-Institut für Extraterrestrische Physik (Germany); H. Relke, Max-Planck-Institut für Extraterrestrische Physik (Germany)
- 7016 1U **A fast link with Paranal: new operational opportunities** [7016-80]  
F. Comerón, G. Filippi, European Southern Observatory (Germany); J. P. Emerson, Queen Mary Univ. of London (United Kingdom)

---

## POSTERS: OBSERVATORY SCHEDULING

---

- 7016 1V **Rapid replacement of Spitzer Space Telescope sequences: targets of opportunity and anomalies** [7016-30]  
S. Tyler, J. O'Linger, S. Comeau, L. Garcia, W. Mahoney, D. McElroy, Spitzer Science Ctr. (United States); D. Mittman, Jet Propulsion Lab. (United States)
- 7016 1W **Spitzer scheduling challenges: cold and warm** [7016-67]  
W. A. Mahoney, S. Comeau, L. J. Garcia, D. B. McElroy, Spitzer Science Ctr. (United States); D. S. Mittman, Jet Propulsion Lab. (United States); J. C. O'Linger, S. R. Tyler, Spitzer Science Ctr. (United States)
- 7016 1X **Observing distant solar system objects with James Webb Space Telescope (JWST)** [7016-70]  
V. Balzano, J. C. Isaacs, E. P. Nelan, Space Telescope Science Institute (United States)
- 7016 1Y **Observing conditions and mid-IR data quality** [7016-71]  
R. Mason, Gemini Observatory, Northern Operations Ctr. (United States); A. Wong, Gemini Observatory, Northern Operations Ctr. (United States) and Univ. of Virginia (United States); T. Geballe, K. Volk, Gemini Observatory, Northern Operations Ctr. (United States); T. Hayward, Gemini Observatory, Southern Operations Ctr. (Chile); M. Dillman, S. Fisher, Gemini Observatory, Northern Operations Ctr. (United States); J. Radomski, Gemini Observatory, Southern Operations Ctr. (Chile)
- 7016 1Z **Target of opportunity observing in queue mode at the Gemini North Observatory** [7016-72]  
K. Roth, Gemini North Observatory (United States); P. Price, Institute for Astronomy, Univ. of Hawai'i (United States); K. Gillies, Space Telescope Science Institute (United States); B. Miller, S. Walker, Gemini South Observatory (Chile)
- 7016 20 **Analysis of local meteorological conditions in Macón using the MM5 modeling system** [7016-73]  
O. Cuevas, A. Chacón, M. Cure, Univ. de Valparaíso (Chile)
- 7016 21 **Meteorological study of Aklim site in Morocco** [7016-81]  
A. Bounhir, Faculté des Sciences et Techniques de Guéliz (Morocco) and Lab. de Physique des Hautes Energies et Astrophysique, Univ. Cadi Ayyad (Morocco); Z. Benkhaldoun, Lab. de Physique des Hautes Energies et Astrophysique, Univ. Cadi Ayyad (Morocco); M. Sarazin, European Southern Observatory (Germany)

---

## POSTERS: OPERATIONAL STATISTICS

---

- 7016 22 **Proposal review rankings: the influence of reviewer discussions on proposal selection** [7016-74]  
L. J. Storrie-Lombardi, N. A. Silbermann, L. M. Rebull, S. Laine, M. Crane, Spitzer Science Ctr., California Institute of Technology (United States)
- 7016 23 **The Spitzer Science Center: using metrics analysis to improve system stability** [7016-75]  
S. Comeau, M. Legassie, Raytheon (United States); L. Bennett, S. Dodd, Spitzer Science Ctr., California Institute of Technology (United States)

---

## POSTERS: USER SUPPORT

---

- 7016 24 **The system support associate model at Gemini Observatory** [7016-76]  
M.-C. Hainaut, Gemini Observatory Southern Operations Ctr. (Chile); D. Coulson, Gemini Observatory Northern Operations Ctr. (United States)
- 7016 25 **SPRITE: the Spitzer proposal review website** [7016-77]  
M. K. Crane, L. J. Storrie-Lombardi, N. A. Silbermann, L. M. Rebull, Spitzer Science Ctr., California Institute of Technology (United States)
- 7016 26 **MySQL/PHP web database applications for IPAC proposal submission** [7016-78]  
M. K. Crane, L. J. Storrie-Lombardi, N. A. Silbermann, L. M. Rebull, Spitzer Science Ctr., California Institute of Technology (United States)
- 7016 27 **Remote observing with the Nickel Telescope at Lick Observatory** [7016-79]  
B. Grigsby, K. Chloros, J. Gates, W. T. S. Deich, E. Gates, R. Kibrick, UCO/Lick Observatory, Univ. of California, Santa Cruz (United States)

*Author Index*



# Conference Committee

## Symposium Chairs

**Mark C. Clampin**, NASA Goddard Space Flight Center (United States)  
**Alan F. M. Moorwood**, European Southern Observatory (Germany)

## Symposium Cochairs

**Masanori Iye**, National Astronomical Observatory of Japan (Japan)  
**Douglas A. Simons**, Gemini Observatory (United States)

## Conference Chairs

**Roger J. Brissenden**, Harvard-Smithsonian Center for Astrophysics  
(United States)  
**David R. Silva**, AURA/Thirty Meter Telescope (United States)

## Program Committee

**Dennis R. Crabtree**, Gemini Observatory (Chile)  
**Suzanne R. Dodd**, California Institute of Technology (United States)  
**Rodger E. Doxsey**, Space Telescope Science Institute (United States)  
**Robert W. Goodrich**, W. M. Keck Observatory (United States)  
**Buell T. Jannuzzi**, National Optical Astronomy Observatory, Kitt Peak  
National Observatory (United States)  
**Andreas Kaufer**, European Southern Observatory (Chile)  
**Mark M. Phillips**, Las Campanas Observatory, Carnegie Observatories  
(Chile)  
**Nicole M. Radziwill**, National Radio Astronomy Observatory (United  
States)  
**Hiroshi Terada**, National Astronomical Observatory of Japan, Subaru  
Telescope (United States)

## Session Chairs

- 1 General Operations I  
**Dennis R. Crabtree**, Gemini Observatory (United States)
- 2 General Operations II  
**Buell T. Jannuzzi**, National Optical Astronomy Observatory, Kitt Peak  
National Observatory (United States)

- 3 Data Management and Quality Control  
**Nicole M. Radziwill**, National Radio Astronomy Observatory (United States)
- 4 Observatory Scheduling  
**Andreas Kaufer**, European Southern Observatory (Chile)
- 5 User Support  
**Robert W. Goodrich**, W. M. Keck Observatory (United States)
- 6 Operational Process  
**Suzanne R. Dodd**, California Institute of Technology (United States)
- 7 Operational Statistics  
**Roger J. Brissenden**, Harvard-Smithsonian Center for Astrophysics (United States)

## **Introduction**

The advent of the next Decadal Survey process in the United States is a timely reminder that the nature, output, and (in particular) cost of observatory operations has captured renewed attention of funding agencies on national and international levels. While every ground and space observatory has its own individual and unique characteristics, each shares with the others a common need to execute technical and science operations in the most efficient and cost-effective way possible. At the same time, the user community at large has come to expect a basket of services from self-serve electronic help desks to large, calibrated, multi-purpose legacy datasets.

Building on our successful SPIE conference in 2006, we invited the observatory operations community to gather to discuss lessons learned and progress made. As before, we were particularly interested in discussions of what works vs. what does not work, as well as what was planned vs. what actually happened. Discussion of the interplay of science operations, technical operations, and observatory development was particularly encouraged — especially as it impacted the maximization of science value return. We were also interested in hearing how observatory legacy data sets are planned for and created, and of the different approaches taken by ground- and space-based observatories. Progress reports from new facilities coming on-line as well as existing facilities facing major new operational challenges were particularly welcomed.

The result was an interesting and successful two-and-a-half day conference that attracted contributions from a broad range of the international ground- and space-based observatory community. The oral sessions were well attended by participants of the Astronomical Telescopes and Instrumentation Symposium at large, demonstrating the heightened awareness that a project does not end at launch and first light. But the most valuable result was the chance to discuss common challenges and mull over possible solutions face-to-face.

We thank our program committee for their service, our participants for their carefully prepared manuscripts and presentations, and the SPIE staff without whom none of this would have been possible.

**Roger J. Brissenden  
David R. Silva**

