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1998 Thirty-Fifth Space Congress Program

Canaveral Council of Technical Societies

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Every Space Congress has made its unique presence felt along the Space Coast. This year will be no different when we celebrate the 35th installment of the oldest forum of its kind and the 40th anniversary of NASA, the agency that made it all possible.

Our theme this year, “Horizons Unlimited”, is extremely appropriate when we consider the extraordinary scientific achievements reached during the last eighteen months and the imminent launch of the first elements of the International Space Station. We are truly at the beginning of a new era of space exploration, exploitation and discovery, with our horizons limited only by our imaginations.

Not since American astronauts landed on the moon 29 years ago, has the world been treated firsthand to the wonders of space exploration as it was on July 4, 1997. Around the globe people watched their televisions and were enthralled as a gutsy piece of manmade machinery and electronics landed on Mars and almost instantaneously shot back images to Earth. As if that wasn’t enough, millions of people monitored the Rover’s whereabouts, on-line, at web sites, created by commercial ventures as well as NASA’s Jet Propulsion Lab scientists. These achievements were followed by the Global Surveyor that will orbit the Red Planet and map its surface for the next two years. Some of those resourceful, brilliant scientists will be here to relate their experiences firsthand to Congress participants.

While there has been some debate about whether we should continue to share our knowledge and our astronauts with the Russians and their Mir station, our astronauts and their cosmonauts have used their resourcefulness and ingenuity to keep the aging station operational. No one accepts equipment malfunctions as “nominal” operations but the lessons we have learned on Mir are vital to a successful International Space Station project and will be instrumental to our future journeys throughout the solar system. Astronauts, and perhaps cosmonauts, will be here to discuss their experiences and why the U.S.-Russian partnership is essential.

In addition, there will be panels and paper sessions addressing the growing demand for the commercial use of unmanned vehicles and the sophisticated constellations of communications satellites. There will also be discussions about the future of reusable launch vehicles, the trends in military payloads and launch vehicles, and the benefits education and our day-to-day lives receive from the various space programs. As in the past, we will continue to have the popular exhibits hall, science fair and Meet the Astronauts panel.

The 35th Space Congress is sponsored by the Canaveral Council of Technical Societies (CCTS) and supported by the National Aeronautics and Space Administration (NASA) and the Department of Defense (DoD). In addition, local citizens and aerospace contractors are involved in planning and organizing this conference.

The Space Congress committee and I welcome you the scientists, engineers, educators, aerospace and defense industry experts and the space enthusiasts, whose achievements and support keep expanding the envelope of our “Horizons Unlimited.”

Bruce Melnick
General Chairman
35th Space Congress
Information

Headquarters/Registration

Headquarters for the Thirty-Fifth Space Congress is the Howard Johnson Plaza-Hotel, Skylab Room. There you may pick up your registration packages and other Space Congress materials including copies of the Proceedings, tickets for Panel/Paper sessions, exhibit reception, luncheons and the banquet. Space Congress memorabilia and the various tickets are also available at the registration satellite desk in the hotel lobby. Registration will be open from 12:00 - 5:00 p.m. on Monday April 27, 7:00 a.m. - 5:00 p.m. from Tuesday through Thursday and 7:00 a.m. - 12:00 on Friday.

PACKAGE REGISTRATION ........................................... $125.00
(Includes first five items listed below)
Registration ......................................................... 50.00
Tuesday Luncheon ............................................... 20.00
Tuesday Banquet .................................................. 40.00
Wednesday Luncheon ............................................ 20.00
Wednesday Exhibit Reception ................................. 15.00
Proceedings Hard Copy (Not in Package) .................. 75.00
Proceedings CD-Rom (Not in Package) .................... 35.00
Golf (Not in Package) ............................................ 40.00

ALL PANEL AND PAPER SESSIONS WILL BE HELD AT THE HOWARD JOHNSON PLAZA-HOTEL. THE BANQUET WILL BE HELD THIS YEAR AT THE RADISSON AT THE PORT.

Package registration will save you money; however, each item may be purchased individually at the listed price. Telephone contact can be made through the Howard Johnson Plaza-Hotel, (407) 783-9222 (ask for Skylab Room) or directly by calling (407) 868-2147.

Press Room

The press facility is located in Room 202 and 204 of the Howard Johnson Plaza-Hotel. The press facility is open from 12 noon to 5:00 p.m. on Monday and from 8:00 a.m. to 5:00 p.m. on Tuesday, Wednesday and Thursday and 8:00 a.m. to noon on Friday. The telephone numbers for the press facility are (407) 784-0260, (407) 784-6913 (407) 784-6455, (fax: 407) 784-0890.

Message/Locator Assistance

The sponsoring organization, the Canaveral Council of Technical Societies (CCTS), maintains an office with telephone (407) 868-1623 and fax (407) 783-5579 for the convenience of Space Congress participants. It also assists attendees by maintaining a message board. Registrants who wish to leave lodging and local phone information can do so by turning in locator forms, available at the Registration Desk, to the CCTS Message/Locator Desk located in the Titan Board Room, Howard Johnson Plaza-Hotel.

Proceedings

The proceedings of the Thirty-Fifth Space Congress are available at the registration desk in the Skylab Room, Howard Johnson Plaza-Hotel during the Space Congress. After the close of the Space Congress, additional proceedings can be purchased for $75 each for hard copy, and $35 each for CD-Rom plus postage from Secretary, CCTS, Post Office Box 245, Cape Canaveral, Florida 32920.

Exhibits

Exhibits will include a Showcase Exhibit, computer graphics demonstrations and displays of the Space Shuttle, Shuttle Payloads, Space Station, Expendable Launch Vehicles, and other space related activi-
Wang Global
Webster University
Xerox Corporation

Youth Science Fair
Regional Youth Science Fair displays and demonstrations will be open to the public Tuesday through Thursday, in the Dolphin Room at the Holiday Inn. Exhibits will be judged and awards presented on Thursday evening, April 30, immediately preceding the “Meet the Astronauts” panel session.

Pioneers’ Annual Banquet
The Pioneers’ Banquet ‘98 will be held on Friday, May 1, at the Officers’ Club, Patrick Air Force Base.
Social Hour: 6:30 p.m.
Dinner: 7:30 p.m.
Speaker: 8:30 p.m. - Richard K. Jacobson
Former CEO & Chairman Spacehab, Inc.

Registration is April 28, 29 and 30 in the Titan Board Room, Howard Johnson Plaza-Hotel, Cocoa Beach, and 5:30 to 6:30 p.m. at the Officers’ Club on May 1.

Space Congress Golf Tournament
Golfers will be able to enjoy a tournament at the Patrick AFB Course on Friday, May 1.
The tournament will be a “scramble” format, as in the past. You may sign up with one partner or by yourself. The tournament committee will assign teams based on playing ability. Foursomes may sign up if they provide a combined total certifiable handicap of 55 or higher. Fill in your name and average score or handicap for 18 holes on the registration form, along with the same from your partner, and enclose $40.00 for each person. A maximum of 144 players will be registered on a first come, first in basis. Lunch, refreshments on the course, green fees, carts, and trophies are included in the fee. Buffet lunch from 11:30 a.m., and shotgun start at 1:00 p.m. Maps are available at the Golf Registration Desk in the Skylab Room of the Howard Johnson Plaza-Hotel. Registration name change will be permitted with notification up to April 29.

Canaveral Council of Technical Societies
CCTS Member Societies:
AACE International
Air Force Association (Cape Canaveral Chapter)
American Institute of Aeronautics & Astronautics
American Institute of Chemical Engineers
American Meteorological Society
American Society of Civil Engineers
American Society of Heating, Refrig. & A/C Engineers
American Society for Industrial Security
American Society of Mechanical Engineers
American Society for Quality
American Society of Safety Engineers
American Society for Training and Development
Armed Forces Communication Electronics Association
Florida Engineering Society
Human Factors and Ergonomics Society
Institute of Electrical & Electronic Engineers (Melbourne and Canaveral Sections)
International Council on Systems Engineering
Missile, Space & Range Pioneers, Inc.
NASA Alumni League
National Contract Management Association
National Space Club: Florida Committee
Society for Technical Communication
Society of American Military Engineers
Society of Logistics Engineers
Society of Manufacturing Engineers
Society of Women Engineers

Associate Members:
Association for Quality and Participation
National Management Association, Florida Space Coast Council
USAF Space & Missile Museum Foundation

Many of the societies will have educational/promotional brochures/information on display at the CCTS Desk at the Howard Johnson Plaza-Hotel, Titan Board Room, Comfort Inn and Suites Resort, and the Hilton Exhibit Center. Attendees are invited to stop by and review this material.

Attraction Centers
Late April in Florida is a delightful time of year for the entire family. The weather is pleasant, the hardy find the Atlantic warm enough for swimming and tourist attractions are not yet crowded. Cocoa Beach offers a long stretch of swimming beach, surfing areas, and both deepsea and shore fishing. Three and four-day cruises aboard the Dolphin IV, SS Oceanic, the SS Atlantic or the Fantasy can be enjoyed from Port Canaveral. Bus tours of the Kennedy Space Center and Cape Canaveral Air Station are available from the Kennedy Space Center Visitor Complex where a free exhibit-filled space museum can be enjoyed by both children and adults.

Within one to two hours drive is a world of vacation fun at Walt Disney World in the Magic Kingdom, Epcot Center, Disney/MGM Studios - Universal Studios, Florida - Sea World, one of America’s finest marine attractions - the mystery and excitement of Africa in Busch Gardens - famed Glass Bottom boats at Silver Springs - or the beautiful gardens and daily water ski revue at Cypress Gardens.
Program

TUESDAY, APRIL 28

KEYNOTE ADDRESS (8:00 a.m. to 8:30 a.m.)
Howard Johnson Plaza-Hotel

Introductions: Bruce Melnick, General Chairman
Speaker: John W. Young, Astronaut
Chief, Space Shuttle Branch

Among Mr. Young's numerous accomplishments are the first flight on the first manned Gemini mission, Gemini 3, March 23, 1965. On Apollo 16, Mr. Young was Command Module Pilot, completing a lunar rendezvous and orbiting the moon May 18 - 26, 1969. Following that flight, he performed three EVAs for the Apollo 16 mission, April 16-27, 1972. He commanded the first flight of the Space Shuttle Columbia (STS-1) on April 12 -14, 1981 and in 1983 was Spacecraft Commander flying the first Spacelab mission, STS-9.

Mr. Young was chosen as Chief of the Space Shuttle Branch of the Astronaut Office in January, 1973. This office provides operational and engineering astronaut support for the design and development of the Space Shuttle. The following year, Mr. Young was responsible for the coordination, scheduling and control of activities of the astronauts as Chief of the Astronaut Office, a position he held until May, 1987. At present, Mr. Young is the associate director responsible for technical, operational and safety of all agency programs and activities assigned to the Johnson Space Center.

Prior to joining NASA, Mr. Young served in the Navy. He was assigned to Fighter Squadron 103 for four years and was subsequently assigned to the Naval Air Test Center during which time he set world time-to-climb records to 3,000-meter and 25,000-meter altitudes in the Phantom. After 25 years of service, he retired as a captain.

During his Navy and NASA careers he has received numerous awards, including four honorary doctorate degrees. His awards include the Congressional Space Medal of Honor, NASA Distinguished Service Medals, three Navy Distinguished Flying Crosses and the American Astronautical Society Space Flight Award.

Mr. Young is married and the father of two children and two grandchildren.

PANEL SESSION I (6:30 a.m. to 11:00 a.m.)
Howard Johnson Plaza-Hotel

VISION OF SPACE STATION OPERATIONS AND UTILIZATION

Panel Chairman: Dr. John David F. Bartoe
Manager for International Space Station

Panel Members:
Kevin Chilton
Tony Butina

Mike Suffredini
James Thorton
Doug C. Stone
Jim Buchil

EXHIBITS (11:00 a.m. to 7:00 p.m.)
Cocoa Beach Hilton, Comfort Inn & Suite Resort

SCIENCE FAIR
Holiday Inn, Dolphin Room

HAB LAB Exhibit (9:00 a.m. to 7:00 p.m.)
Cocoa Beach Hilton

LUNCHEON (11:30 a.m. to 1:00 p.m.)
Holiday Inn, Manatee Ballroom

Introductions: Dr. John David F. Bartoe
Panel: Bruce Melnick, General Chairman
Speaker: Brian Muirhead
Pathfinder Project Manager
Jet Propulsion Laboratory

Topic: Pathfinder Mission

Results of Mars Exploration

Brian Muirhead has worked on various spacecraft and technology projects since coming to JPL in 1978. His first job was building flight hardware on the Galileo spacecraft now in orbit around Jupiter. He managed the Advanced Spacecraft Development Group and the Mechanical Systems Integration Section. He has led three of JPL's recent "faster, better, cheaper" developments: the SIRC Antenna Mechanical System (which flew on STS 59 and 68), the MSL 1 Mechanical Subsystems, launched in 1992 and most recently the Mars Pathfinder flight system which landed successfully on Mars on July 4, 1997. On Mars Pathfinder he was responsible for the design, development, test and launch of the flight system. He is currently the Project Manager for Mars Pathfinder. In addition, he manages the Deep Space 4/Champion Project designing a mission to land on, analyze in situ and return to Earth a sample from a comet. He has a BSME from the University of New Mexico and an MSSE from Cal Tech.

PAPER SESSION I (2:00 p.m. to 5:00 p.m.)

A. SCIENTIFIC ENLIGHTENMENT
Howard Johnson Plaza-Hotel

Session Chairman: Roy C. Tharpe, Manager, Launch Site Management Office, The Boeing Company

Session Organizer: Suzanne Cunningham

Craig R. Reed
2. NEW SPACE LAUNCH MARKET NEEDS AND MEETING THEM
   Karen Ramos

3. A CASE STUDY IN JOINT FEDERAL AND STATE COOPERATIVE ACTIVITIES IN DEVELOPMENT OF SPACE-RELATED PROGRAMS IN FLORIDA
   Roelof L. Schuiling
   Edward A. O'Connor

4. TECHNOLOGY-BASED BUSINESS INCUBATORS AS A MEANS OF COMMERCIALIZATION AND TECHNOLOGY TRANSFER
   Kathleen F. Harer

5. FLIGHT OPPORTUNITIES FOR COMMERCIAL UTILIZATION
   Kenneth A. Jackson, Sr.
   Bernard A. Harris

6. A STRATEGY FOR IMPLEMENTATION OF INTEGRATED VEHICLE HEALTH MANAGEMENT INTO THE SPACE SHUTTLE PROGRAM
   Jack J. Fox

B. SPACE STATION/MIR REPORT
   Howard Johnson Plaza-Hotel

1. MODELING AS METHODOLOGY: THE USE OF VEHICLE LEVEL CONTROL SYSTEM MODELING FOR THE INTERNATIONAL SPACE STATION (ISS) PROGRAM
   Jimmy L. Williams
   Scott C. Haase

2. THE INTERNATIONAL SPACE STATION PARTNERS: BACKGROUND AND CURRENT STATUS
   Daniel V. Jacobs

3. CREW TRAINING FOR INTERNATIONAL SPACE STATION: PLANS, CONCEPTS AND ISSUES ON THE EVE OF FIRST ELEMENT LAUNCH
   Ven C. Feng

4. REPORT ON THE INTERNATIONAL SPACE STATION’S PLANNING FOR CRITICAL ASSEMBLY PHASE FAILURES
   Anthony J. Butina
   William W. Robbins, Jr.

5. ENGINEERING FOR THE ISS LIFETIME
   Irene Taylor

6. X-RAY CRYSTALLOGRAPHY FACILITY COMMERCIAL PATHFINDER FOR SPACE UTILIZATION (IAF PAPER)
   William McDonald
   Johanna Lewis
   Craig Smith
   Lawrence Delucas
   Michael Kearney
   Ken Jackson

7. CONTRACTS VS. COMMERCIALIZATION—THE NEED FOR PRIVATIZATION BY NASA: A PERSPECTIVE ON ISS PLANS FOR COMMERCIALIZATION THROUGH PRIVATIZATION
   Sid Clinton

C. DOD ACHIEVEMENTS
   Howard Johnson Plaza-Hotel

1. LESSONS LEARNED ESTABLISHING THE TITAN IVB LAUNCH SYSTEM CAPABILITY
   Daniel C. McAlister

2. WHAT'S WRONG WITH THE COMMERCIAL SPACE LAUNCH ACT: A LAUNCH BASE PERSPECTIVE
   Lt. Col. Robert Wayne Eleazer, III, USAF

3. METEOROLOGICAL SUPPORT TO ASSURE SAFE ACCESS TO SPACE
   Lt. Col. R. W. Taylor, USAF

4. 1997 EASTERN RANGE LAUNCH PERFORMANCE
   Michael W. Maier

5. SPACE ENVIRONMENTS IMPACTS ON SATELLITE, RADAR AND COMMUNICATIONS SYSTEMS
   Maj. Mike Christie, USAF

6. TECHNOLOGICAL ADVANCES AND DEVELOPMENTS IN LOW POWER GALLIUM ARSENIDE FOR SPACE APPLICATIONS
   Dr. Charles Cerny
   Capt. K. Merkel, USAF
   R. Bobb
   E. Martinez
   F. Schuermeyer

D. LEARNING FROM EXPERIENCE
   Howard Johnson Plaza-Hotel

1. AN INTERDISCIPLINARY STUDENT PAYLOAD TO PERFORM SPACE BASED REMOTE SENSING AND TO MEASURE MICROGRAVITY AND RADIATION EFFECTS
   Andrew Blitz
   John D. Bickham
   Robert Friedfeld
   John Feranda
   Rolando Branly
   Chris Dahl
   Eric Ackerman
   Chris Theodorakis
   Joseph M. Ritter

2. INTERNET SCIENCE AND TECHNOLOGY FAIR
   Bruce Furino
   Joyanne Craft

3. LEVERAGING SPACE FOR IMPROVED SCIENCE PROGRAMS
   Robert Friend
Dr. Foale, began his career as an astronaut in June 1987, providing verification and testing of shuttle flight software by flying the Shuttle Avionics Integration Laboratory (SAIL) simulator. Assigned as a mission specialist, Dr. Foale flew on STS-45, STS-56 and performed an EVA during STS-63, the first rendezvous with the Russian Space Station Mir. Responsible for the development of crew rescue and integrated operation for International Space Station, he was Board Engineer 2 on Mir 24. Recently, Dr. Foale was appointed assistant director at Johnson Space Center.

Following the launch of STS-84, on May 17, 1997, Dr. Foale joined the crew aboard Mir. During his four months aboard Mir, Dr. Foale conducted various science experiments to help the crew resolve and repair a number of systems’ problems. He assisted Commander Anatoly Solovyev in September, 1997 on a six-hour EVA to inspect the damage caused by a Progress re-supply ship that collided with the station during docking. During his astronaut career, Dr. Foale logged more than 160 days in space and 10 1/2 hours of EVA.

Prior to pursuing a career in the U.S. Space Program, Dr. Foale participated in scientific scuba diving projects while he was at Cambridge University where he completed his doctorate in laboratory astrophysics. One of the diving projects involved surveying underwater antiquities in Greece. He also volunteered to dive on the 1543 ocean galleon “The Mary Rose,” to learn excavation and survey techniques in very low visibility conditions.

Dr. Foale joined Johnson Space Center in the payload operations area of the Mission Operations Directorate in June, 1983. His primary responsibility as payload officer was payload operations on the Space Shuttle missions, STS-51G, 51-I, 61-B and 61-C. Before joining NASA, Dr. Foale worked on Space Shuttle navigation at McDonnell Douglas Aircraft Corporation.

Dr. Foale considers Cambridge, England his home. He is married to the former Rhonda R. Butler of Louisville, KY., and has two children.
5. THE ADVANCED CAMERA FOR SURVEYS  
Dr. Holland Ford

6. PROSPECTS FOR THE NICMOS CRYOCOOLER  
Dr. Ed Cheng

C. FUTURE ENDEAVORS FOR MILITARY SPACE  
Howard Johnson Plaza-Hotel

Session Chairman: Major Scott Swanson, USAF, Director of Launch Systems Acquisition and Operations

Session Organizer: Frank Aderton

1. DECREASING THE COST OF SPACECRAFT LAUNCH PROCESSING  
Capt. John T. Eichner, USAF

2. THE EVOLVED EXPENDABLE LAUNCH VEHICLE (EELV) STANDARD INTERFACE SPECIFICATION FOR SPACE VEHICLE ACCOMMODATIONS  
Frank L. Knight

3. COMMAND AND CONTROL THROUGH SPACE-BASED SYSTEMS  
Bill Naus  
Chris Bocchino  
Belo Kardos  
Jack Lyle  
Gary Mason  
Coleen Vaccaro  
Bob Velez

4. A SPACE-BASED LASER READINESS DEMONSTRATION COULD DEMONSTRATE A NEW WAY OF OPERATING IN SPACE  
Darrell Newell

5. WARFIGHTER 1: AN AIR FORCE PARTNERSHIP WITH INDUSTRY TO ADVANCE SPACE IMAGING SPECTROSCOPY  
Thomas Cooley, Ph.D.  
Lt. Col. Gary Seigel, USAF  
Maj. Ivan Thorsos, USAF  
Janic Olson  
Marko Stoyanof

6. WARFIGHTER 1: USER UTILITY ACTIVITIES  
Lt. Col. Gary Seigel, USAF  
Thomas Cooley, Ph.D.  
David Bergeron  
Capt. Larry Haas, USAF  
Maj. Ivan Thorsos, USAF

7. WHY A UNITED STATES SPACE FORCE NOW  
Capt. William O. Glascoe, Ill, USAF

D. NEW HORIZONS IN EDUCATION  
Howard Johnson Plaza-Hotel

Session Chairman: Gregg Buckingham

Session Organizer: Tim Kotnour

1. VIRTUAL SCIENCE MENTOR  
Donna Price Henry

2. FLORIDA SPACE GRANT CONSORTIUM  
Humberto Campins  
Jaydeep Mukherjee

3. CLCS AS A CASE STUDY FOR HUMAN FACTORS EDUCATION  
Marc Resnick  
Julie Jacko

4. INTERNET BASED TRAINING TO SUPPORT A CHANGING WORKFORCE  
Randall Tilley

5. NASA/FLORIDA MINORITY INSTITUTION ENTREPRENEURIAL PARTNERSHIP  
Ann Taylor, Ph.D.  
Irma Becerra-Fernandez, Ph.D.  
Doris Brown, Ph.D.  
Frank Kinney  
Abbas Entessari, Ph.D.

6. DEFINING PARTNERSHIP NEEDS FOR FLORIDA'S AEROSPACE/AVIATION INDUSTRY & THE STATE EDUCATIONAL SYSTEM  
Tim Kotnour, Ph.D.

7. THE SPACE LIFE SCIENCES TRAINING PROGRAM, PREPARING FOR TOMORROW TODAY  
Shannon Potter

8. PROJECT VISION  
Gustavo A. Roig, Ph.D.  
Frederico Norwood, Ph.D.  
Irma Becerra-Fernandez, Ph.D.  
M. A. Ebadian  
David C. McCalla, Ph.D.  
Ana Maria Lopez, Ph.D.  
Lucy Puello-Capone, Ph.D.

EXHIBITS (11:00 a.m. to 5:00 p.m.)  
Cocoa Beach Hilton and Comfort Inn & Suite Resort

Science Fair  
Holiday Inn, Dolphin Room

HAB LAB Exhibit (9:00 a.m. to 8:00 p.m.)  
Cocoa Beach Hilton
LUNCHEON (11:30 a.m. to 1:00 p.m.)
Holiday Inn, Manatee Ballroom

Introductions: Bruce Melnick, General Chairman
Speaker: Lt. General Lance W. Lord, USAF
US Space Command
Vice Commander Air Force Space Command

Lieutenant General Lance W. Lord
is Vice Commander, Headquarters
Air Force Space Command, Peterson Air Force Base, Colo.

The general entered the Air Force in 1969 as a graduate of the Otterbein
College Reserve Officer Training Corps program. He completed a
series of Air Staff and Department of Defense-level assignments in
strategic missiles after serving four years of alert duty with the Minuteman
II Intercontinental Ballistic Missile (ICBM) force. He has served as
commandant of Squadron Officer School and directed the Ground Launched Cruise Missile Program Management Office in Europe. He represented the Air Force as a
research associate in international security affairs with Ohio State
University. Before assuming his current position, he was commander,
2nd Air Force, Keesler Air Force Base, Miss. During assignments in
North Dakota and Wyoming, the general commanded missile wings
operating the Minuteman III and Peacekeeper weapon systems. In
California he commanded a space wing responsible for West Coast
satellite launch and ballistic missile test launch operations. He also has
served as director of plans at Headquarters Air Force Space Command. General Lord and his wife, Rebecca, have two sons.

PANEL SESSION II (1:30 p.m. to 4:30 p.m.)
Howard Johnson Plaza-Hotel

"DOD—EXPLOITING SPACE FOR WORLD PEACE"
Panel Chairman: Lt. General Lance W. Lord, USAF
US Space Command
Vice Commander Air Force Space Command

Panel Representatives are from the following organizations:
45th Space Wing
NASA
FAA
Spaceport Florida Authority

EXHIBITS RECEPTION (6:00 p.m. to 8:00 p.m.)
Cocoa Beach Hilton and Comfort Inn & Suite Resort
Exhibit Hall, Cocoa Beach (TICKET REQUIRED)

THURSDAY, APRIL 30

PANEL SESSION III (8:00 a.m. to 11:00 a.m.)
Howard Johnson Plaza-Hotel

TO THE MOON AND MARS
Panel Chairman: Dr. Michael D. Griffin, Executive Vice President
Orbital Sciences Corporation
NASA HQ

Panel Members:
Norm Haynes
Dr. Richard Obermann
Col. S. Peter Worden, USAF
Dr. Robert Zubrin
Dr. Wesley J. Huntress

EXHIBITS (9:00 a.m. to 3:00 p.m.)
Cocoa Beach Hilton, Comfort Inn & Suite Resort

SCIENCE FAIR
Holiday Inn, Dolphin Room

HAB LAB Exhibit (9:00 a.m. to 3:00 p.m.)
Cocoa Beach Hilton

PAPER SESSION III (1:00 p.m. to 4:00 p.m.)
A. SPINOFFS FROM SPACE
Howard Johnson Plaza-Hotel

Session Chairman: Dr. Robert Norwood
Office of Chief Technologist, NASA Headquarters

Session Organizer: Chris Cook

1. AUTOMATED PRS ON WIRELESS NETWORKS
Stephen M. Schneider
Michael N. Clark

2. TECHNOLOGY TRANSFER: BRIDGING SPACE AND SOCIETY
Orlando Melendez

3. DESIGN OF A PORTABLE DATA COLLECTION PROCEDURE
SYSTEM FOR PROCESSING SPACE SHUTTLE PAYLOADS AND MAIN ENGINES AT THE KENNEDY SPACE CENTER
Darcy Miller
John Lekki
Kevin Jackson
Mike Kappel
Loretta Moore

4. PROTOTYPE AEROGEL INSULATION FOR MELAMINE-FOAM SUBSTITUTE: CRITICAL SPACE STATION EXPRESS RACK TECHNOLOGY
David Noever
Laurent Sibille
David D. Smith
Raymond Cronise
5. **LOAR, A THREE-DIMENSIONAL LIGHTNING WARNING SYSTEM: ITS DEVELOPMENT AND USE BY THE GOVERNMENT, AND TRANSITION TO PUBLIC AVAILABILITY**

   Stan Starr  
   David Sharp  
   John Madura  
   Francis Merceret, Ph.D.  
   Martin Murphy, Ph.D.

6. **FLIGHT OPPORTUNITIES FOR COMMERCIAL UTILIZATION (SPACEHAB)**

   Dr. Bernard A. Harris

7. **EELV DELTA IV LAUNCH OPS.**

   Dawn King  
   William Erskine  
   Thomas Alexiou

**B. TECHNOLOGY DEVELOPMENT AND UTILIZATION IN SPACE**

Howard Johnson Plaza-Hotel

*Session Chairman:* Tony Spear, Project Manager, Mars Pathfinder  
Jet Propulsion Laboratory

*Session Organizer:* Linda Bradley

1. **ALKALI METAL THERMAL TO ELECTRIC CONVERTER TECHNOLOGY DEVELOPMENT FOR POTENTIAL DEEP SPACE SCIENTIFIC MISSIONS**

   Jack F. Mondt  
   Robert K. Sievers

2. **X2000: REVOLUTIONARY SYSTEMS FOR EXPLORATION OF THE OUTER PLANETS**

   David F. Woerner

3. **COMMITTEE ON EARTH OBSERVATION SATELLITES (CEOS): REMOTE SENSING EDUCATION AND DEVELOPING COUNTRIES**

   Leslie B. Charles

4. **PROSPECTS OF UTILIZATION OF THE SPACE-PURPOSE TEMPERATURE SENSORS FOR PUBLIC & COMMERCIAL USE**

   Yu. M. Shwarts  
   E. F. Venger  
   N. R. Kulish  
   V. L. Borblik

5. **THE 1998 MARS SURVEYOR LANDER AND ORBITER PROJECT**

   Dr. John B. McNamee

6. **COMMERCIAL PROVISION OF THE X-RAY CRYSTALLOGRAPHY FACILITY**

   William McDonald  
   Lawrence DeLucas  
   Michael E. Kearney  
   Kenneth Jackson

7. **SPACE-DRUMS CONTAINERLESS PROCESSING FACILITY FOR A MICROGRAVITY ENVIRONMENT**

   Dr. Jacques Yves Guigne  
   E. A. Sloot

8. **COMMERCIAL ACCESS TO THE EXTERNAL SPACE ENVIRONMENT**

   Michael Kearney  
   Phil Mongan

9. **OVERVIEW OF THE ORBITING RADIO COMMUNICATION ASSET (ORCA) MISSION**

   William J. Byrd  
   Robert Stemowski  
   Darby G. Cooper

10. **A ROADMAP FOR SPACE MICROELECTRONICS TECHNOLOGY INTO THE NEW MILLENNIUM**

    Dr. Leon Alkalai

11. **THE APPRAISAL OF WEATHER SATELLITE IMAGES/RADAR DATA FOR THE INTENSE METEOROLOGICAL SYSTEMS OVER PAKISTAN BOTH IN SUMMER & WINTER**

    M. Amjed Siddique Almas  
    Syed Amer Mahmood

12. **REMOTE SENSING TECH FOR VEGETATION & SOIL SALINITY**

    M. Amjed Siddique Almas  
    Mohammed Ali  
    Rizwan Shahid  
    Kashif Reban  
    M. Khalid

**C. SPACE TECHNOLOGY—DEVELOPMENTS FROM THE MILITARY**

Howard Johnson Plaza-Hotel

*Session Chairman:* James C. Hobin, General Manager, Launch Base Support Project, Johnson Controls, Inc.

*Session Organizer:* Duncan McCulloch

1. **EELV/DELTA IV PROGRAM LAUNCH OPERATIONS & FACILITIES**

   Thomas G. Alexiou  
   William D. Erskine  
   Dawn Marie King

2. **EASTERN RANGE TO DATE EXPERIENCES WITH TDRSS AND POTENTIAL FUTURE USES**

   Chris Bocchino  
   William Hamilton

3. **DEVELOPMENT OF DUAL USE LAUNCH FACILITIES ON A NATIONAL RANGE**

   Robert M. Storlaz  
   Doug Burnett

4. **TDRSS EXPERIENCES IN THE ATLAS CENTAUR PROGRAM**

   J. P. Stroud
5. ADVANCED MECHANISMS FOR SPACE APPLICATIONS
   Eugene R. Fosness
   Richard Madison
   Dino Sciulli
   David B. Founds

D. SPACE BENEFITS FOR FUTURE GENERATIONS
   Howard Johnson Plaza-Hotel

Session Chairman: Phil Rose, Instructional Services Division, School
Board of Brevard County
Session Organizer: Cindy Coddington

1. THE EFFECTS OF HYDROPHILIC & HYDROPHOBIC COATINGS AND CONTAINER SHAPE ON FLUIDS & CONTAINERS IN A MICROGRAVITY ENVIRONMENT
   Robert S. Ward
   David Swanson
   Sarah Oswald
   Brandon Cangiano
   Maryanne Murray

2. TRIALS, TRANSFORMATIONS, AND TRIUMPHS: THE SPACE PROGRAM'S PAST, PRESENT, AND FUTURE IMPACT ON SOCIETY
   Melissa Kulik

3. ATTAINING SPACE BENEFITS FOR OUR GENERATION
   Tony DeTora

4. THE COLLABORATIVE UKRAINIAN EXPERIMENT
   Peter V. Chetirkin
   Thomas W. Dreschel
   Volodimir Nazarenko
   Paul Williams

5. HUBBLE DISCOVERIES: CREATING THE NEXT GENERATION OF SCIENTISTS
   Tom Devlin

SPACE CONGRESS RECEPTION (6:00 p.m. to 8:00 p.m.)
   Holiday Inn Observation Deck

PANEL SESSION IV (7:00 p.m. to 9:00 p.m.)
   Howard Johnson Plaza-Hotel

MEET THE ASTRONAUTS
   Panel Chairman: Loren Shriver, Deputy Director for Launch & Payload Processing, NASA, Kennedy Space Center, FL
   Astronauts: As available between training commitments.

FRIDAY, MAY 1

PANEL SESSION V (8:00 a.m. to 11:00 a.m.)
   Howard Johnson Plaza-Hotel

COMMERCIALIZATION
   Panel Chairman: Mike Hawes, Deputy Director of Space Station Requirements
   Panel Members:
   John Higginbotham
   Shelley A. Harrison
   Edward O'Conner, Jr.
   Ralph N. Moslen

SPACE CONGRESS GOLF TOURNAMENT
   (11:30 a.m. to 6:00 p.m.) (Approximately)
   Patrick AFB Golf Course
   Buffet Lunch: 11:30 a.m.
   Shotgun Start: 1:00 p.m.
   Map available at registration desk.

MISSILE, SPACE & RANGE PIONEERS' ANNUAL BANQUET
   Patrick AFB, Officers' Club
   Social Hour: 6:30
   Dinner: 7:30
   Speaker: 8:30 - Richard K. Jacobson
   Former CEO & Chairman
   Spacehab, Inc.
PROGRAM SUMMARY

MONDAY, APRIL 27
12:00 noon to 5:00 p.m.
REGISTRATION DESK OPEN, Howard Johnson Plaza-Hotel

TUESDAY, APRIL 28
7:00 a.m. to 5:00 p.m.
REGISTRATION DESK OPEN, Howard Johnson Plaza-Hotel

8:00 a.m.
KEYNOTE ADDRESS
Howard Johnson Plaza-Hotel

8:30 a.m. to 11:00 a.m.
PANEL SESSION I: VISION OF SPACE STATION OPERATIONS AND UTILIZATION
Howard Johnson Plaza-Hotel

11:00 a.m. to 7:00 p.m.
EXHIBITS, Cocoa Beach Hilton, Comfort Inn & Suite Resort
SCIENCE FAIR, Holiday Inn, Dolphin Room

(9:00 a.m. to 7:00 p.m.)
HAB LAB Exhibit, Cocoa Beach Hilton

11:30 a.m. to 1:00 p.m.
LUNCHEON, Holiday Inn, Manatee Ballroom

2:00 p.m. to 5:00 p.m.
PAPER SESSION I:
A. SCIENTIFIC ENLIGHTENMENT, Howard Johnson Plaza-Hotel
B. SPACE STATION/MIR REPORT, Howard Johnson Plaza-Hotel
C. DOD ACHIEVEMENTS, Howard Johnson Plaza-Hotel
D. LEARNING FROM EXPERIENCE, Howard Johnson Plaza-Hotel

7:00 p.m.
BANQUET, Radisson at the Port

WEDNESDAY, APRIL 29
7:00 a.m. to 5:00 p.m.
REGISTRATION DESK OPEN, Howard Johnson Plaza-Hotel

8:00 a.m. to 11:00 a.m.
PAPER SESSION II:
A. CURRENT AND FUTURE LAUNCH CAPABILITIES, Howard Johnson Plaza-Hotel
B. NASA—ASSESSING PROGRESS, Howard Johnson Plaza-Hotel
C. FUTURE ENDEAVORS FOR MILITARY SPACE, Howard Johnson Plaza-Hotel
D. NEW HORIZONS IN EDUCATION, Howard Johnson Plaza-Hotel

1:00 p.m. to 5:00 p.m.
EXHIBITS, Cocoa Beach Hilton, Comfort Inn & Suite Resort
SCIENCE FAIR, Holiday Inn, Dolphin Room

(9:00 a.m. to 8:00 p.m.)
HAB LAB Exhibit, Cocoa Beach Hilton

THURSDAY, APRIL 30
7:00 a.m. to 5:00 p.m.
REGISTRATION DESK OPEN, Howard Johnson Plaza-Hotel

8:00 a.m. 11:00 a.m.
PANEL SESSION III: TO THE MOON AND MARS
Howard Johnson Plaza-Hotel

9:00 a.m. to 3:00 p.m.
EXHIBITS, Cocoa Beach Hilton, Comfort Inn & Suite Resort
SCIENCE FAIR, Holiday Inn, Dolphin Room

(9:00 a.m. to 3:00 p.m.)
HAB LAB Exhibit, Cocoa Beach Hilton

1:00 p.m. to 4:00 p.m.
PAPER SESSION III:
A. SPINOFFS FROM SPACE, Howard Johnson Plaza-Hotel
B. TECHNOLOGY DEVELOPMENT AND UTILIZATION IN SPACE; Howard Johnson Plaza-Hotel
C. SPACE TECHNOLOGY—DEVELOPMENTS FROM THE MILITARY, Howard Johnson Plaza-Hotel
D. SPACE BENEFITS FOR FUTURE GENERATIONS, Howard Johnson Plaza-Hotel

6:00 p.m. to 8:00 p.m.
SPACE CONGRESS RECEPTION, Holiday Inn Observation Deck

7:00 p.m. to 9:00 p.m.
PANEL SESSION IV: MEET THE ASTRONAUTS, Howard Johnson Plaza-Hotel

FRIDAY, MAY 1
7:00 a.m. to 12:00 noon
REGISTRATION DESK OPEN, Howard Johnson Plaza-Hotel

8:00 a.m. to 11:00 a.m.
PANEL SESSION V: COMMERCIALIZATION
Howard Johnson Plaza-Hotel

11:30 a.m. to 5:30 p.m.
SPACE CONGRESS GOLF TOURNAMENT, Patrick AFB, Golf Course

6:30 p.m. to 10:00 p.m.
MISSILE, SPACE & RANGE PIONEERS' ANNUAL BANQUET, Patrick AFB, Officers' Club
ACKNOWLEDGMENTS

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Newspapers: Florida Today and Brevard Business News

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