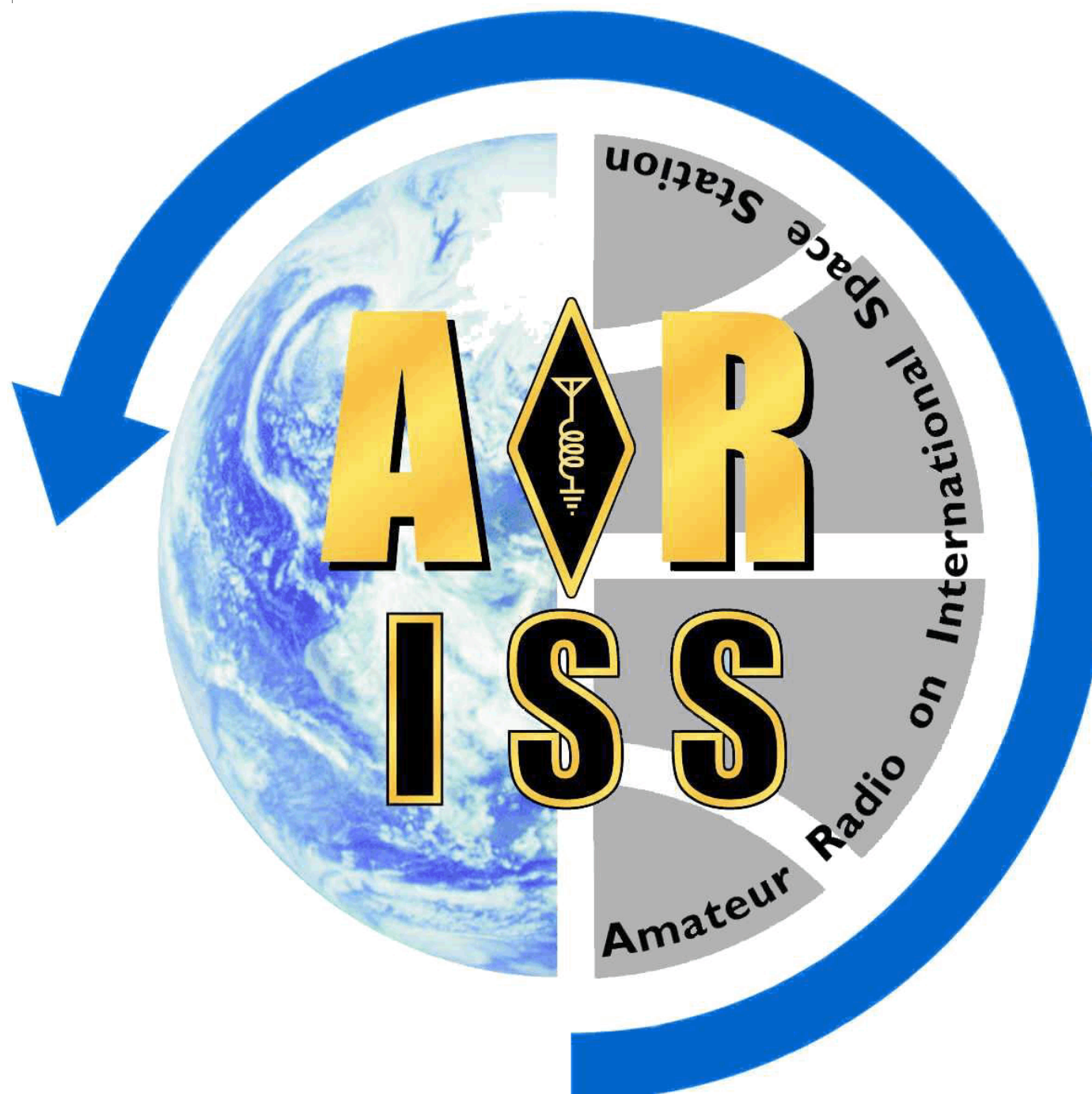




ARISS

- What is ARISS ?
 - Definition
 - Organisation
 - Onboard station
 - School Contacts
 - Ham Astronauts
- Columbus
 - Antennas
 - Onboard equipment

Definition

- Amateur radio societies from the ISS partner countries, in the USA, Canada, Russia, Europe and Japan, have set up ARISS, Amateur Radio on ISS, a volunteering working group devoted to develop and put into operation the on-board amateur radio station.
- The European societies decided to work as a group. ARISS-Europe is the European branch of ARISS.
- ARISS-Europe counts several societies:
 - AMRAD Portugal
 - AMSAT-Belgium Belgium
 - AMSAT-France France
 - AMSAT-Italy Italy
 - AMSAT-SM Sweden
 - AMSAT-UK UK
 - ARI Italy
 - DARC Germany
 - MARL Malta
 - PZK Poland
 - RAL Lebanon
 - REF-Union France
 - REP Portugal
 - RSGB UK
 - UBA Belgium
 - USKA Switzerland

ARRISS international organisation

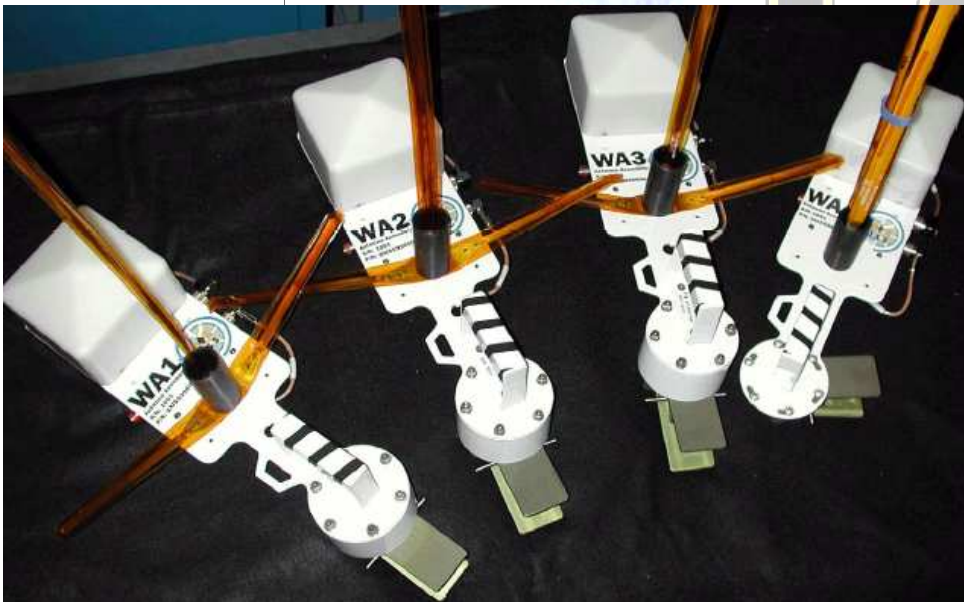
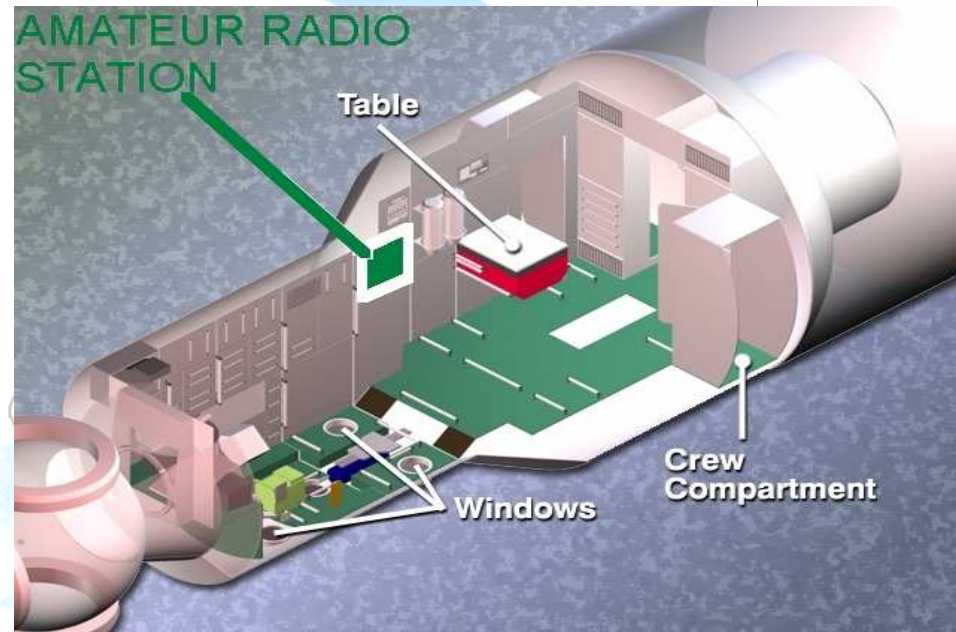
- ARISS comprises five "Regions":
 - USA,
 - Canada,
 - Russia,
 - Europe,
 - Japan.
- The member societies of each Region are represented in each Committee.
- The Board is elected by the Regions for 2 year terms.
- Presently the Board members are:
 - Chairman: Gaston Bertels, ON4WF
 - Vice-Chairman: Mark Steiner, K3MS
 - Secretary: Rosalie White, K1STO
- ARISS is a non-profit organisation. All ARISS activities are performed by volunteers.

ARISS-Europe staff

- ARISS-Europe board:
 - Chairman: Gaston Bertels, ON4WF
 - Technical Director: Marco Lisi, IZ0FNO
 - Technical Counsellor: Jörg Hahn, DL3LUM
 - Technical Counsellor: Christophe Mercier
- QSL Manager: Christophe Candebat, F1MOJ
- School Contacts Manager: Jörg Hahn, DL3LUM
- School Contacts Mentors:
 - Dr Peter Kofler, IN3GHZ
 - Christophe Candebat, F1MOJ
 - Howard Long, G6LVB
 - Francesco de Paolis, IK0WGF
 - Marco Pernic, 9A8MM
 - Eskil van Loosdrecht, SM5SRR
 - Michele Mallardi, IZ7EVR

ARISS onboard station

Phase 2 equipment is located in the Service Module, the crew's living quarters



Four antennas were deployed by EVA (space walk) and clamped on handrails outboard the Service Module.

One of the antennas is 2.5 meters long and supports HF operation.

ARISS onboard station - Phase 2

Phase 2 Hardware comprises two multiband transceivers supporting 2 meter (144-146 MHz) and 70 cm (435-438 MHz) transmit/receive.



"ARISS school contact"

ARISS School Contacts

- The space agencies have entrusted ARISS with the task to implement amateur radio contacts with schools for the astronauts onboard the International Space Station.
- Candidate schools shall prepare a space oriented educative project and submit an Application to the ARISS school selection committee. This international committee meets every month per teleconference.
- Selected schools are put on waiting list. The Application form can be downloaded from the ARISS-Europe webpage.
- The list of pending applications for the European region is also available on this webpage.

ARISS School Contacts

- Every week the ARISS Operations Committee meets per teleconference and identifies the best opportunities for the next schools on the list.
- Several parameters are to be taken into account :
 - number of contacts authorized by the agencies,
 - geographical location of the schools,
 - orbital movement of the ISS,
 - possible time segments on board as well as for the schools.
- The scheduling process takes about two months. A volunteering ARISS "mentor" helps the school and the volunteering ground station operators to prepare the contact.
- Important aspects of this preparation are detailed in the "Step by Step Guide" available on the webpage.

ARISS School Contacts

- When a direct ARISS School Contact is scheduled in the European region, we circulate an announcement to the subscribers of the ARISS-Europe News Bulletin.
- Interested parties are invited to listen to the astronaut answering the questions prepared by the students.
- Radioamateurs can easily receive the radio signal transmitted from the ISS when it is in line of sight of their station.
- When a direct ARISS School Contact cannot be done, the option is to do a "telebridge". In that case, the radio contact is done by one of the dedicated ARISS ground stations located in USA, Europe, Hawaii, Australia and South Africa and the up- and downlink audio is relayed to the school by Verizon Conferencing, a world telephone company. Telebridge contacts are mostly relayed worldwide by Echolink and IRLP.
- Reports of ARISS School Contacts are available on the ARISS-Europe News Bulletins archives page. Some recordings and pictures can also be downloaded.

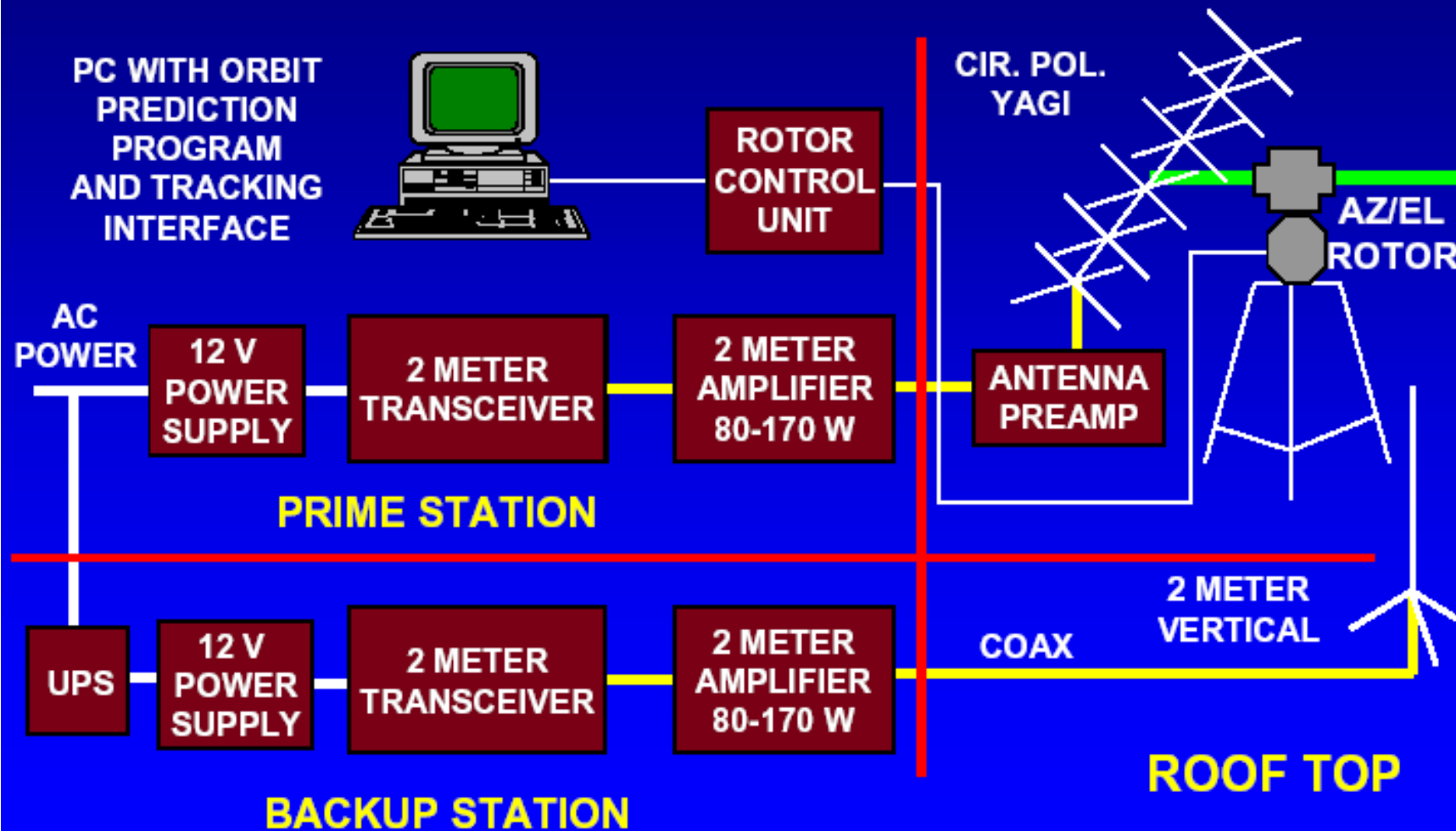
ARISS School Contacts

old and new ARISS Telebridge Ground Stations



ARISS School Contacts

DIRECT CONTACT INSTALLATION



ARISS School Contacts



Image taken after one ARISS school contact
...the true **SUCCESS** !



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Ham Astronauts

Some astronauts,
more than others,
like doing individual
ham radio contacts

"I would like to express my deep gratitude to the world-wide amateur radio community for your participation in this great adventure. Clearly, one of the benefits for Amateur Radio is bridging the distances between us. Through your participation, you helped realize the potential for the human exploration of space to do exactly that. Thanks to you, over the past six months, the International Space Station has been more international than ever before. Together, we achieved many significant milestones from space, DXCC, WAC, WAS, and most importantly, 35 school contacts (as of March 21, 2006)".

Bill McArthur, KC5ACR, Commander Expedition 12



Roberto Vittori, IZ6ERU on board ISS – Eneide Mission 2005



Kenneth Ramson, N5VHO

Paolo Nespoli, IZ0JPA

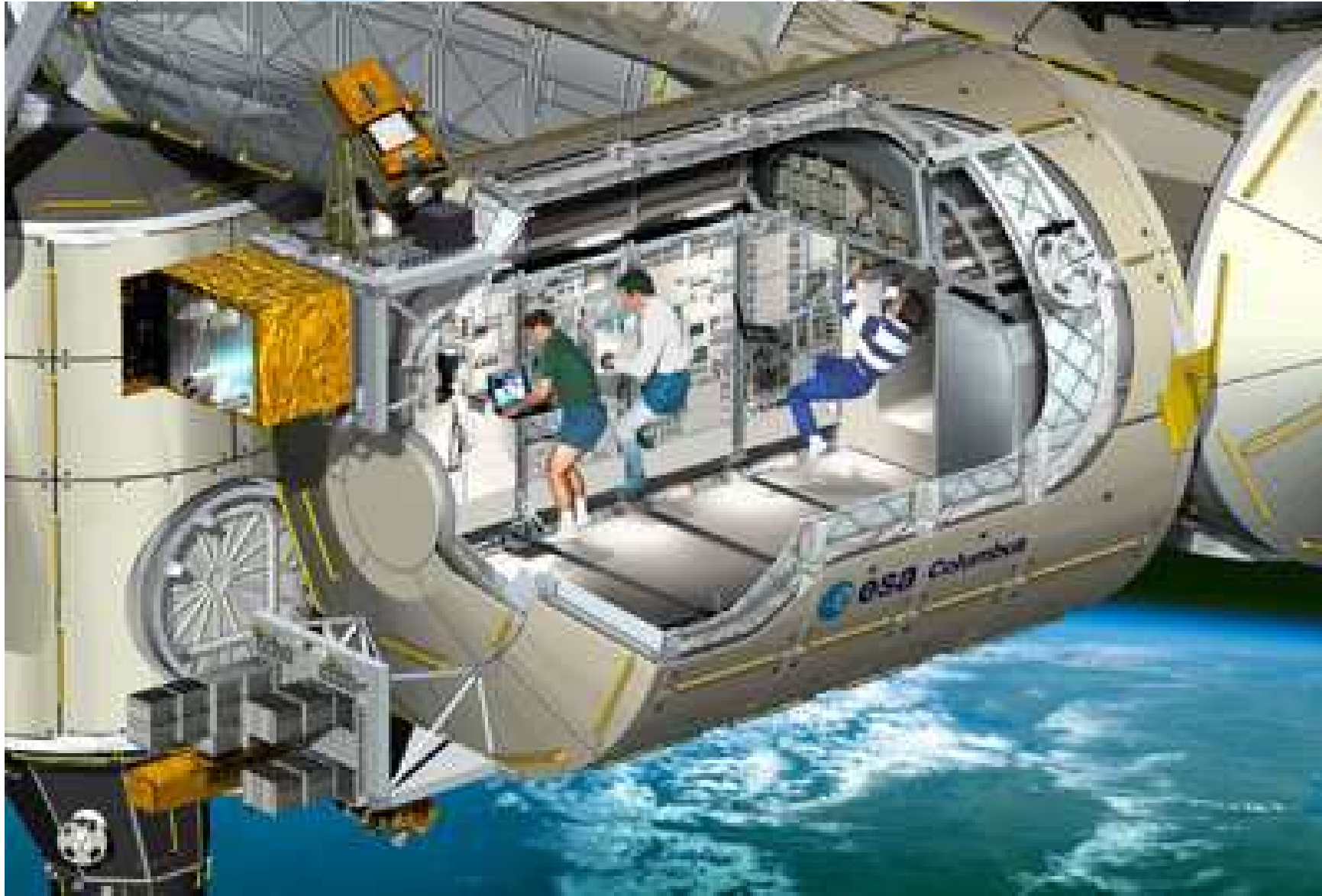
Houston – NASA JSC

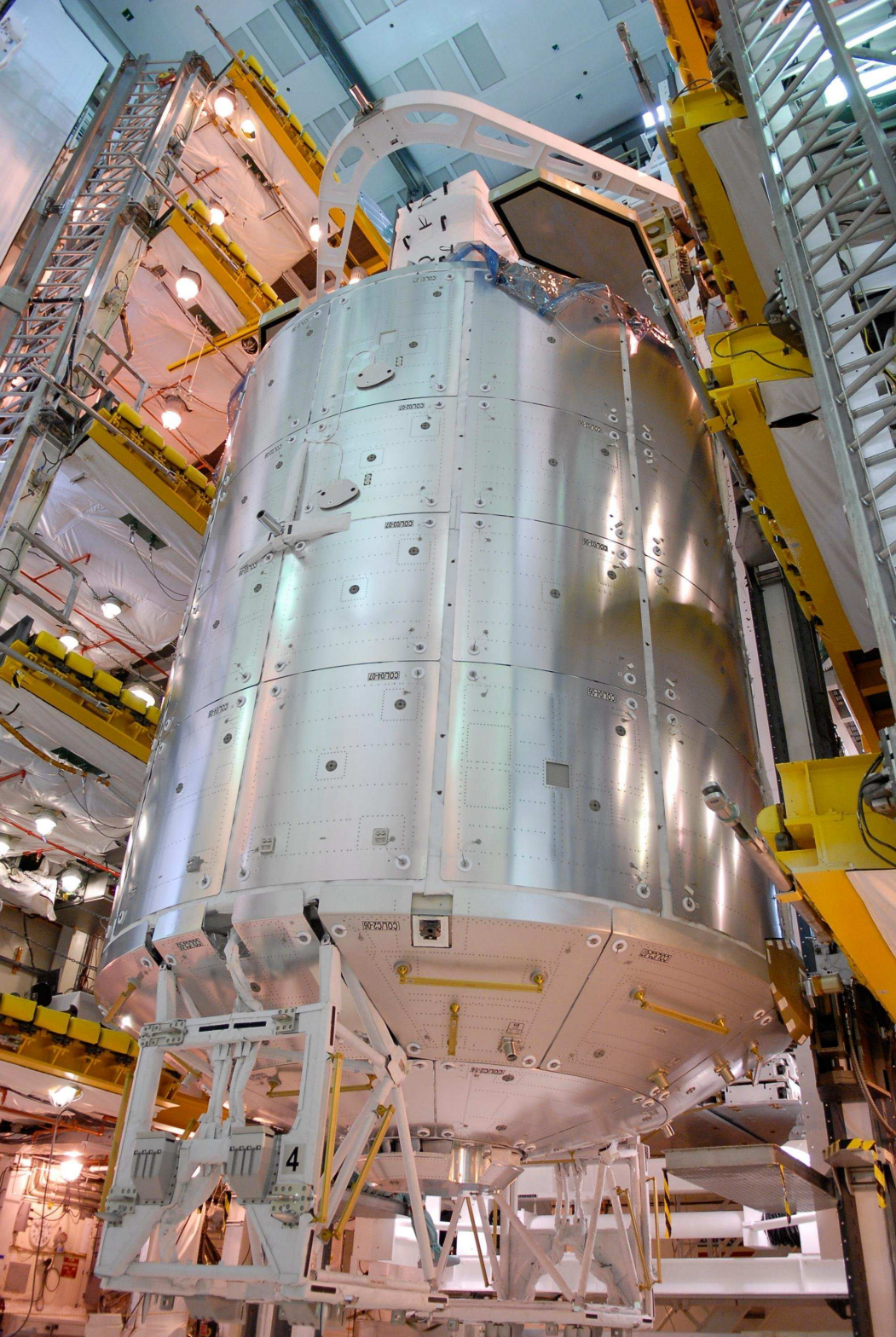
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COLUMBUS

The European Space Laboratory





Columbus in the payload changeout room at Kennedy Space Center.

The changeout room is the enclosed, environmentally controlled portion of the rotating service structure that supports cargo delivery to the launch pad and subsequent vertical installation into the orbiter payload bay.

ARISS antennas are clearly visible on MDP's (Meteorite Debris Panels) COL/01-07 and COL/02-07.

(Photo credit NASA/Kim Shiflett)

Amateur Radio on Columbus

- ESA has accepted an amateur radio station on Columbus
- Project :
 - Patch antennas for L/S-band on the nadir
 - Linear transponder L-band Up, S-band down
 - HAM Station by old ERICSSON equipment radio
 - DATV : Digital ATV
- Development:
 - Feedthroughs, coaxial cables and antennas installed
 - Equipment to be developed
 - HAM Station on board with next STS 134
 - Funding...



New VHF/UHF antenna installed on Columbus Module

