

Spacecraft Techniques and Technology

30 May to 3 June and 6 to 10 June 2005

DIAGORA - Labège - Toulouse

Programme



CENTRE NATIONAL D'ETUDES SPATIALES

Monday 30 May 2005

08:00 - 09:00 Participant registration and orientation

09:00 - 09:15 Inauguration - Jean-Claude DURAND

MODULE I – Spacecraft definition and characteristics

PERSON IN CHARGE: Jean-Claude DURAND

MODULE III – Space environment and constraints

PERSON IN CHARGE: Delphine FAYE

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module I 09:15 - 10:00	Jean-Claude DURAND	Spacecraft definition and characteristics	45'
COFFEE BREAK			
Module III 10:30 - 11:15	Delphine FAYE	Space vacuum, Microgravity, Non-ionising radiation environment, Chemical environment	45'
11:15 - 11:45	Jean-Pierre CATANI	The charging environment	30'
11:45 - 12:00	Fernand ALBY	Meteoroids and space debris	15'
LUNCH			

MODULE II - Spaceflight dynamics

PERSON IN CHARGE: Corinne SALCEDO

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module II 14:00 - 15:15	Corinne SALCEDO	Fundamental laws	75'
COFFEE BREAK			
Module II 15:45 - 16:45	Muriel RIVAL	Geostationary orbits	60'
16:45 - 17:30	Laurent FRANCILLOUT	Interplanetary trajectories	45'

Tuesday 31 May 2005

1st week

MODULE II - Spaceflight dynamics

PERSON IN CHARGE: Corinne SALCEDO

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module II			
09:00 - 09:45	Corinne SALCEDO	Remote sensing missions	45'
09:45 - 10:30	Jean-François GOESTER	Mission to the Space Station	45'
COFFEE BREAK			
Module II			
11:00 - 11:45	Stéphanie DELAVault	Orbit determination	45'
11:45 - 12:30	François DUFOUR	Constellations - Satellite formations	45'
LUNCH			

MODULES V ET VI - Telecommunication and navigation missions and architecture

PERSON IN CHARGE: Jacques SOMBRIN et Jean-Luc ISSLER

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module V			
14:00 - 15:00	Jacques SOMBRIN	Introduction, electromagnetic spectrum, link budgets	60'
15:00 - 15:30	Frédéric CORNET	Propagation	30'
COFFEE BREAK			
Module V			
16:00 - 16:30	Vincent MEENS	Regulations	30'
16:30 - 17:45	Christophe DONNY	Telecommunication missions and architecture	75'

Wednesday 1st June 2005

1st week

MODULES V ET VI - Telecommunication and navigation missions and architecture

PERSON IN CHARGE: Jacques SOMBRIN et Jean-Luc ISSLER

Modules V et VI			
09:00 - 09:45	Stéphane MAY	Functional telecommunication architecture	45'
09:45 - 10:45	Jean-Luc ISSLER	Radio navigation/location systems: missions and architecture	60'
COFFEE BREAK			
Modules V et VI			
11:00 - 11:30	Caroline BAZILE	Air interface (modulation, bit error rate)	30'
11:30 - 12:00	Emmanuel BOUISSON	Air interface (error corecting codes)	30'
12:00 - 12:30	Michel GRONDIN	Errors in Positioning Measurements	30'
LUNCH			

MODULE VIII – Radiofrequency payloads and equipment

PERSON IN CHARGE: Jacques SOMBRIN

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module VIII			
14:00 - 14:30	Jacques SOMBRIN	RF subsystem architecture	30'
14:30 - 15:30	Patrick DUMON	Antennas	60'
COFFEE BREAK			
Module VIII			
16:00 - 16:30	Patrick DUMON	Active and semi-active antennas	30'
16:30 - 17:00	Luc LAPIERRE	Reception	30'
17:00 - 17:30	Jérôme DELPORTE	Generation of stable frequencies	30'

Thursday 2 June 2005

1st week

MODULE VIII – Radiofrequency techniques

PERSON IN CHARGE: Jacques SOMBRIN

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module VIII			
09:00 - 10:00	Luc LAPIERRE	Power transmission - Filtering	60'
10:00 - 10:30	Thierry ROBERT	Digital equipment	30'
COFFEE BREAK			
Module VIII			
11:00 - 11:30	Jérémie BENOIST	TM/TC equipment	30'
11:30 - 12:00	Antoine DE LATOUR	Navigation/Location equipment	30'
LUNCH			

MODULE VII – Observation and science missions and payloads

PERSON IN CHARGE: Jean-Michel MARTINUZZI

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module VII			
13:45 - 14:30	Jean-Michel MARTINUZZI	Missions and measurement physics	45'
14:30 - 15:15	Bruno CUGNY	Radiofrequency instrumentation. Radiometers	45'
COFFEE BREAK			
Module VII			
15:45 - 16:15	Nathalie STEUNOU	Radar altimeter	30'
16:15 - 16:45	Thierry AMIOT	Synthetic aperture radars	30'
16:45 - 17:30	Jean-Claude SOUYRIS	Radar image processing	45'

Friday 3 June 2005

1st week

MODULE VII – Observation and science missions and payloads

PERSON IN CHARGE: Jean-Michel MARTINUZZI

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module VII			
09:00 - 09:45	Josiane COSTERASTE	Optical instrumentation	45'
09:45 - 10:30	David LAUBIER	Imagers	45'
COFFEE BREAK			
Module VII			
11:00 - 11:45	Philippe HEBERT	Fourier transform spectrometers	45'
11:45 - 12:15	Bernard ROUGE	Optical image processing	45'
LUNCH			

MODULE IX – Optical and optoelectronic techniques

PERSON IN CHARGE: Alain BARDOUX

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module IX			
13:45 - 14:45	Jacques BERTHON	Optical techniques	60'
14:45 - 15:15	Muriel SACCOCCIO	Laser techniques	30'
COFFEE BREAK			
Module IX			
15:45 - 16:35	Alain BARDOUX	Detectors	50'
16:35 - 17:15	Jean-Marc BIFFI	Detection electronics	40'

Monday 6 June 2005

MODULE X – Mechanical and thermal engineering

PERSON IN CHARGE: Bernard EHSTER

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module X			
09:00 - 09:30	Pierre BOUSQUET	Mechanical and thermal architecture	30'
09:30 - 10:30	Jean-Noël BRICOUT	Structure	60'
COFFEE BREAK			
Module X			
11:00 - 12:00	Guy TURZO	Structural materials	60'
12:00 - 12:30	Eric WERLING	Thermal Control	30'
LUNCH			

MODULE X – Mechanical and thermal engineering (continued)

PERSON IN CHARGE: Bernard EHSTER

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module X			
14:00 - 15:30	Eric WERLING	Thermal Control	90'
COFFEE BREAK			
Module X			
16:00 - 18:00	Philippe GUAY & Jean-Bernard MONDIER	Mechanisms	120'

Tuesday 7 June 2005

MODULE XI - Propulsion

PERSON IN CHARGE: Bernard EHSTER

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module XI			
09:00 - 09:15	Denis ARRAT	Introduction	15'
09:15 - 09:45	Denis DILHAN	Pyrotechnics and solid propellant propulsion	30'
09:45 - 10:10	Isabelle GIBEK	Chemical propulsion	25'
10:10 - 10:40	Franck DARNON	Electric propulsion	30'
COFFEE BREAK			
Module XI			
11:10 - 11:40	Nicolas PILLET	Propulsion subsystem: design and testing	30'
11:40 - 12:10	Isabelle GIBEK	Propellant management and plume effects	30'
12:10 - 12:30	Nicolas PILLET	The Future of Propulsion	20'

MODULE XIII – Electrical architecture

PERSON IN CHARGE: Bernard EHSTER

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module XIII			
14:00 - 15:00	Christian ELISABELAR	Electrical power subsystem	60'
15:00 - 15:30	Etienne RAPP	Photovoltaic sources	30'
COFFEE BREAK			
Module XIII			
16:00 - 16:45	Jean-Marc WALTER	Electromagnetic compatibility	45'
16:45 - 17:30	Denis PAYAN	Satellite electrostatic discharges	45'

Wednesday 8 June 2005

MODULE XII – Attitude control and pointing

PERSON IN CHARGE: Pierre PELIPENKO

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module XII 09:00 - 10:30	Michel DELPECH	Satellite dynamics and kinematics	90'
COFFEE BREAK			
Module XII 11:00 - 12:30	Johan MONTEL Philippe GUAY	Onboard attitude determination and control (ADCS)	90'
LUNCH			
Module XII 14:00 - 15:00	Pierre PELIPENKO	Some ADCS architectures	60'

MODULE XIV – Onboard data handling architecture and management

PERSON IN CHARGE: Bernard EHSTER

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module XIV 15:00 - 15:30	Gilles MOURY	Onboard data handling	30'
COFFEE BREAK			
Module XIV 16:00 - 17:30	Gilles MOURY	Onboard data handling	90'

Thursday 9 June 2005

MODULE XIV - Onboard data handling architecture and management

PERSON IN CHARGE: Bernard EHSTER

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module XIV			
09:00 - 09:30	Gilles MOURY	Onboard data handling	30'
09:30 - 10:30	Paul ARBERET	Flight software	60'
COFFEE BREAK			

MODULE XV – Planetary exploration

PERSON IN CHARGE: Michel MAURETTE

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module XV			
11:00 - 12:00	Michel MAURETTE	Planetary exploration	60'
12:00 - 12:30	Laurent RASTEL	Planetary exploration	30'
LUNCH			

MODULE IV – Product assurance and development

PERSON IN CHARGE: Daniel LACROIX

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module IV			
14:00 - 15:00	Gilles DORLEAC	Product assurance and project management	60'
15:00 - 15:40	Thierry JAMIN	Quality of materials	40'
COFFEE BREAK			
Module IV			
16:00 - 16:30	Francis PRESSECQ	An overview of components	30'
16:30 - 17:10	Marc BILLOT	An overview of technologies	40'

Friday 10 June 2005

MODULE IV - Product assurance and development

PERSON IN CHARGE: Daniel LACROIX

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module IV			
09:00 - 09:45	Philippe LAY	Components policy	45'
09:45 - 10:30	Robert ECOFFET	Radiations effects on components	45'
COFFEE BREAK			
Module IV			
10:50 - 11:30	Philippe PERDU	Electronic Expertise	40'
11:30 - 12:30	Karine ETIENNE & Emmanuelle VERGNAULT	Dependability: controlling technical risks	60'
LUNCH			

MODULE I – Spacecraft definition and characteristics

PERSON IN CHARGE: Jean-Claude DURAND

TIMETABLE	SPEAKERS	PRESENTATION TITLE	DURATION
Module I			
14:00 - 15:30	Thibéry CUSSAC François BUISSON	Practical Example of a Satellite Design	90'