



**WELCOME
To**

**The First International Conjunction
Assessment Workshop**

**May 19-20, 2015
CNES HQ
2 place Maurice Quentin
Paris, France**

AIRBUS DEFENSE & SPACE	François	BONAVENTURE
ASTRORUM CONSULTING	Matt	HEJDUK
CNES	Jean-Paul	BERTHIAS
CNES	François	LAPORTE
CNES	Monique	MOURY
EUTELSAT	David	ZAMORA
JAXA	Shigeru	USUKI
MDA GSI	Camille	DECOUST
NASA GSFC	Lauri	NEWMAN
USAF JFCC SPACE	Diana	MCKISSOCK



**PROGRAM COMMITTEE
of the workshop**



- ❖ European **Satellites End of Life Operations** Workshop
every 2 years since 2006 at CNES HQ
point of contact: Pierre Omaly
(pierre.omaly@cnes.fr)
- ❖ European **Space Debris Modelling and Remediation** Workshop
every 2 years since 2010 at CNES HQ
point of contact: Christophe Bonnal
(christophe.bonnal@cnes.fr)
- ❖ International **Conjunction Assessment** Workshop
first edition May 2015
dedicated to in-orbit Conjunction Assessment
point of contact: Monique Moury
(monique.moury@cnes.fr)

SPACE DEBRIS RELATED WORKSHOPS
organized by CNES

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- ❖ To bring together operational actors directly involved in the management of on-orbit collision risks
- ❖ To provide opportunities for networking and technical discussions
- ❖ To share practices and feedback on CA risk assessment
- ❖ To identify difficulties and possible remediation

115 registered participants
20 countries
60 entities

OBJECTIVES
of the workshop

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1. SMARTnet: First Results (DLR GSOC)
2. GMV'S conjunction analysis tool CLOSEAP (GMV)
3. Middle Man, CAESAR and CARA examples (CNES, NASA)
4. PREEMPT and PREEMPT-Manager: Web Tools for Visualizing and Managing Conjunctions Events (CGI)
5. Comparison of Collision Avoidance Activities based on TLE or CSM information (DEIMOS)
6. Web-based CA collaboration (SpaceNav)
7. ASAL's experience with management of collision risks and debris mitigation (ASAL)
8. SpOD : a Web collaborative work environment dedicated to conjunctions analysis (CNES)
9. Orbit determination and maneuvering for propulsionless cubesats in LEO (PLANET)

PROGRAM
posters

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14:00 DATA SESSION - Chair: BERTHIAS Jean-Paul, CNES, France

1. JSpOC process
2. Conjunction assessment for GEO satellites: ISON experience of using orbital data produced from own measurements
3. Improved CA via the Commercial Space Operations Center (ComSpOC)
4. CDM Overview - the JSpOC Implementation

Discussion

15:40 - 16:10 Coffee – Posters

16:10 TOOLS SESSION - Chair: NEWMAN Lauri, NASA GSFC, USA

1. Constrained optimal collision avoidance strategies for multiple conjunction events
2. Collision risk assessment and avoidance manoeuvre strategies for satellites: CORAM tool
3. CSA On-Orbit Collision Risk Management Tools, Procedures & Experience
4. Improvement of the KARISMA for the commercialization
5. JAC, conjunction assessment

Discussion

18:10 - 20:00 Networking Buffet Dinner

PROGRAM
Tuesday, May 19

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8:45 - 9:10 Coffee - Posters

9:10 LEO FEEDBACK SESSION - Chair: HEJDUK Matt, Astrorum Consulting, USA

1. Collision management & SPOT 6-7 operational assessment
2. Radarsat2 conjunction analysis and mitigation operations
3. Operational collision avoidance at ESOC
4. Operational Collision Risk Management for the S-NPP Spacecraft
5. IRIDIUM's Maneuver Pre-Screening Process to Minimize the Aggregate Probability of Collision

10:50 - 11:20 Coffee – Posters

6. 10-Years of EOS Operational Collision Avoidance
7. EUMETSAT's LEO Conjunction Risk Forecast Operations and Avoidance Strategy Revisit
8. Collision Avoidance in LEO : from general concept to individual realities
9. Conjunction Assessment for DigitalGlobe's Commercial Imaging Satellite Constellation
10. Operation Results of Conjunction Assessment and Mitigation for the GSOC Satellites

Discussion

PROGRAM

Wednesday, May 20 (morning)

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13:10 - 14:20 Lunch at the restaurant “Au Chien Qui Fume”

14:20 – 14:40 coffee - Posters

14 :40 SYSTEM SESSION - Chair : DECOUST Camille, MDA GSI, Canada

1. Recent Upgrades of ESA's Collision Avoidance Tools and Processes
2. CAESAR
3. Conjunction Assessment for JAXA satellites
4. CARA Overview and Screening Volume Analysis

Discussion

16:20 - 16:50 Coffee – Posters

16:50 GEO FEEDBACK SESSION - Chair: ZAMORA David, EUTELSAT, France

1. Conjunctions handling for the geosynchronous fleet at EUMETSAT, with support of optical data
2. How to avoid large debris in geostationary orbit: Yahsat's Encounter Process
3. Current State of Conjunction Monitoring for Satellite Operators and the Steps Forward

Discussion

18:00 - 18:20 Goodbye

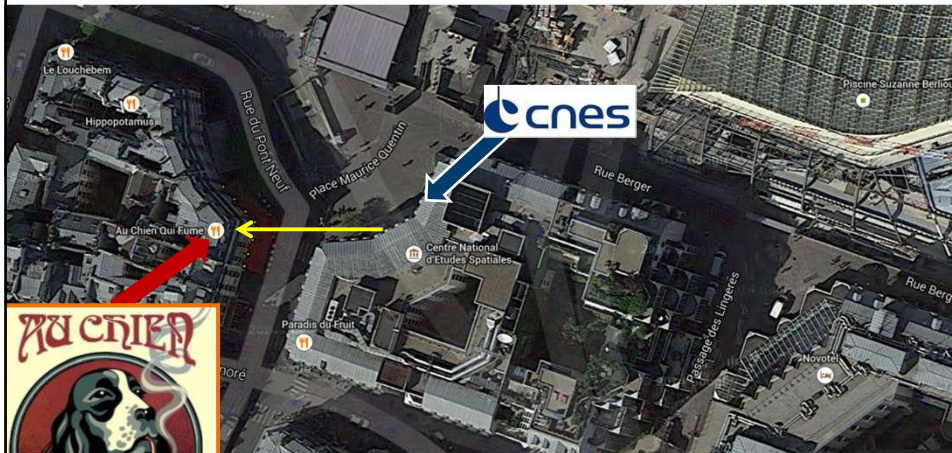
PROGRAM

Wednesday, May 20 (afternoon)

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On Wednesday, Lunch at 13:10 , restaurant “Au Chien Qui Fume” →



Back to CNES at 14:20 for coffee

PRACTICAL INFORMATION lunch on Wednesday

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Thanks a lot to all who helped and especially: →

- in the idea: many international partners
- in the decision: Bernard Cabrières and CNES management
- in the organization: Fernand Alby and Christophe Bonnal who shared their experience organizing workshops, all the Program Committee members for their support (link with Space-Track etc...) and successively Aurélie Barril, Sabine Chazal Martin and Véra Buisson.

Timing is tight

- Chairs and presenters : **20 minutes** including short introduction by chairs
- Long coffee breaks and the networking buffet dinner the first day to favor discussions
- **Dedicated time at the end of each session for questions and discussions.** Please wait for microphones.

PRACTICAL INFORMATION general

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Presentation materials (pdf) and the list of participants will be made available to participants after the workshop (link to download the files sent by email).

All oral presentations and posters can be made available on Space-Track Operator's Panel (pdf) thanks to Diana McKissock:

- Let us know if this is OK (for those who did not already say)
- Add contact information in your pdf file if you are OK to allow operators to contact you regarding your presentations
- Send your pdf file to **jspoc@space-track.org**

PRACTICAL INFORMATION

general