

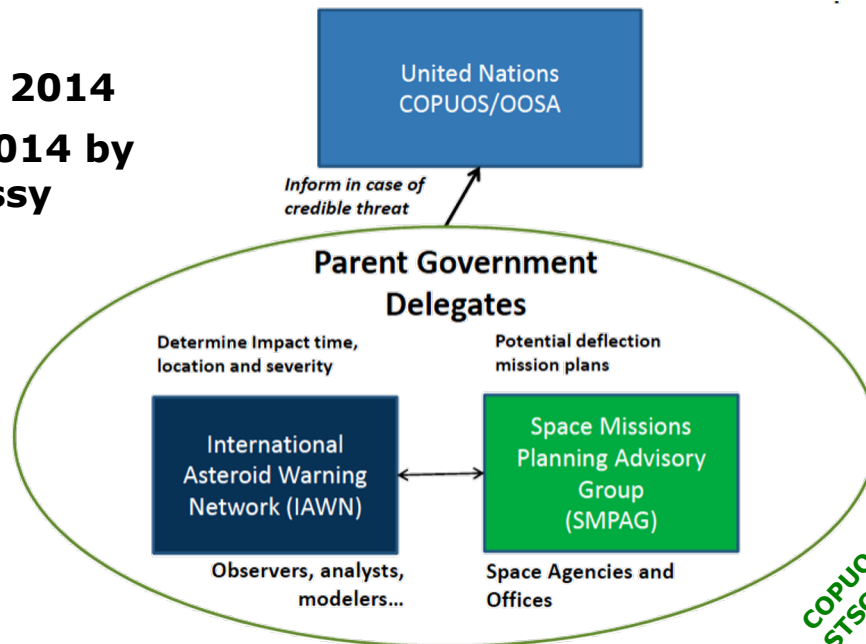
SMPAG status

D. Koschny, SMPAG chair

18 Oct 2022, IAWN meeting; 19 Oct 2022, SMPAG meeting

Reminder – context

- ❑ 'Action Team 14' created after the Unispace 99 conference – task: Define how we should deal with the asteroid impact threat
- ❑ 2008 – 2013: Definition phase – meetings in the margin of UN COPUOS STSC and UN COPUOS meetings
- ❑ The conclusion:
 - presented Feb 2014
 - adopted Oct 2014 by the General Assy



COPUOS = Committee of Peaceful Uses of Outer Space
STSC = Scientific and Technical Sub-Committee (of COPUOS)

From: SMPAG-RP-003, status report on work package 5.1, "Recommended criteria & thresholds..."
https://www.cosmos.esa.int/documents/336356/1879207/SMPAG-RP-003_01_0_Thresholds%26Criterion_2018-10-18.pdf

- 1) IAWN shall warn of predicted impacts exceeding a probability of 1% for all objects characterized to be greater than 10 meters in size, or roughly equivalent to absolute magnitude of 28 if only brightness data can be collected.
- 2) Terrestrial preparedness planning should begin when warned of a possible impact:
 - Predicted to be within 20 years,
 - Probability of impact is assessed to be greater than 10%, and
 - Object is characterized to be greater than 20 meters in size, or roughly equivalent to absolute magnitude of 27 if only brightness data can be collected.
- 3) SMPAG should start mission option(s) planning when warned of a possible impact:
 - Predicted to be within 50 years,
 - Probability is assessed to be greater than 1%, and
 - Object is characterized to be greater than 50 meters in size, or roughly equivalent to absolute magnitude of 26 if only brightness data can be collected

Current status - 1



All documents and minutes are available via the web page:

<https://www.smpag.net>.

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SMPAG » Meeting #18 (Feb 2022)

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SMPAG members

Documents and presentations

Statement on Asteroid Orbit Deflection Demonstration

Terms of Reference V2.0

www.iawn.net

UN Office of Outer Space Affairs NEO pages

SUMMARY OF THE 18TH MEETING OF THE SPACE MISSION PLANNING ADVISORY GROUP (SMPAG)

9 & 10 FEBRUARY 2022

MS TEAMS VIRTUAL MEETING

The 18th meeting of the Space Mission Planning Advisory Group (SMPAG) took place on 9 and 10 February 2022, in a format of two half-day virtual meetings. The meeting was chaired by the European Space Agency (ESA), the current SMPAG Chair (2020-2022) and supported by the UN Office for Outer Space Affairs (UNOOSA) as the Secretariat.

Adoption of the agenda and introduction of participants.

The agenda was adopted. The following agencies and institutions were represented at the meeting (AEM, ASI, CNSA, CNES, DLR, ESA, FFG, ISA, JAXA, KASI, NASA, ROSA, UKSA). Observers for ASE, COSPAR, ESO, IAA, IAU and UNOOSA, and the representatives of IAWN, *ex officio* member participated at the meeting. Representatives from the SMPAG Legal Working Group as well as a representative of the Secure World Foundation (SWF) also attended the meeting.

DAY 1, 9 February

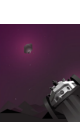
1) SMPAG Status and General Items

SMPAG Chair, Detlef Koschny, presented the status of SMPAG members and observers. The status is available at http://www.smpag.net/smpag_members. The Brazilian Space Agency (AEB) submitted a letter to become SMPAG member, presentation of their activities is expected at the next SMPAG meeting. The Chair also informed that the Secure World Foundation applied for observer status and will present its activities at this meeting.

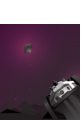
2) Report by IAWN

IAWN Coordinator, Kelly Fast, NASA PDCO, reported on the status of IAWN since last SMPAG meeting. There are currently 38 signatories to the IAWN Statement of Intent, representing independent astronomers, observatories, and space institutions from Brazil, Canada, Chile, China, Colombia, Croatia, France, Greece, Israel, Italy, Latvia, Mexico, Poland, Spain, the Republic of Korea, the Russian Federation, the United Kingdom, the United States, as well as international European organisations. She informed that in 2021, IAWN successfully conducted a coordinated campaign to observe near-Earth asteroid 2019 XS, in order to evaluate the quality of the technical capabilities of this worldwide observing network and to identify areas for improvement. The observing campaign was coordinated with the IAU's Minor Planet Center; with participation of 69 observatories across the globe. Preliminary results indicated largely high-quality data from the worldwide network, the results will be fully analysed and published in a peer-reviewed publication, and posted on the IAWN website at <https://iawn.net> by summer of 2022.

IAWN Coordinator also informed that IAWN at their latest meeting of the Steering Committee held on 8 February, among others, considered a proposal for an international year focusing on near-Earth asteroids and planetary defence activities, and was



- ❑ **18 member delegations** (see https://www.smpag.net/smpag_members)
- ❑ **7 observers**
- ❑ **1 ex-officio member (IAWN)**
- ❑ **A few 'in the pipeline'**
- ❑ **Main activity: SMPAG hypothetical asteroid impact exercise**
 - **Prepared and coordinated by the Italian Space Agency ASI**
 - **Three 'sprints'**
 - **First one done: Collecting response procedures within agencies**
 - **Report later today, with discussion**
 - **Next steps – what should happen on SMPAG level; later: involve IAWN**



- **Workplan items (discussion to combine some is pending)**
 - **Criteria and thresholds for impact threat response actions (done)**
 - **Mitigation mission types and technologies to be considered (work ongoing)**
 - **Mapping of threat scenarios to mission types (work ongoing)**
 - **Reference missions for different NEO threat scenarios (work ongoing)**
 - **A plan for SMPAG action in case of a credible threat (work ongoing)**
 - **Communication guidelines in case of a credible threat**
 - **Produce a 'road map' for future work on planetary defence (working doc available)**
 - **Consequences, including failure, of NEO mitigation space missions (work ongoing)**
 - **Criteria for deflection targeting (work ongoing)**
 - **Study of the nuclear device option**
 - **Toolbox for a characterisation payload (working doc available)**

According to the Terms of Reference: We need to elect a chair again.

The chairmanship of the Steering Committee should normally rotate among the Members at two-year intervals. The Chair can be re-elected. The Chair will be nominated by Members and confirmed by simple majority vote of the Steering Committee. The Chair of the Steering Committee will represent the SMPAG at UNCOPUOS.

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DOCUMENTS AND PRESENTATIONS

This page links to relevant documents related to the work of the SMPAG.

GENERAL DOCUMENTS

Plans

[SMPAG-PL-001 - Workplan V2.0, SMPAG-PL-001/2.0](#)

Reports

[SMPAG-RP-001 - Roadmap of relevant research for planetary defense, SMPAG-RP-001/3.0, 15 Apr 2020](#)

[SMPAG-RP-002 - Draft report on work package 5.5, SMPAG-RP-002/D.0, 2018 Oct 10](#)

[SMPAG-RP-003 - Status report on work package 5.1 from workplan "Recommended criteria & thresholds for action for a potential NEO impact threat", SMPAG-RP-003/1.0, 2018 Oct 18](#)

[SMPAG-RP-004 - Report by the SMPAG Ad-Hoc Working Group on Legal Issues to SMPAG, SMPAG-RP-004/1.0, 2020 Apr 08](#)

Other

[Terms of reference for the ad-hoc legal working group, as agreed by the SMPAG #09 meeting on 11 Oct 2017.](#)

PRESENTATIONS FROM THE SMPAG MEETING #18 (09/10 FEB 2022)

[Status of SMPAG \(ESA, Koschny\)](#)

[Status of IAWN \(NASA, Fast\)](#)

[Update on Japanese missions \(JAXA, Yoshikawa\)](#)

[Update on US missions \(NASA, Johnson\)](#)

[Update on Hera mission \(ESA\)](#)

[NEA-related activities in Germany \(DLR, Harris\) - see SMPAG #17 presentation slides.](#)

[NEA-related activities in Italy \(ASI, Gabrielli\)](#)

[Intelligent decision support system \(UK, Vasile\)](#)

<https://www.smpag.net>