SPACE CYBER SECURITY WATCH

May 3, 2021 - Space Cyber Security Community

www.spacesecurity.info

You will find below the first Space Cyber Security Watch of the Space Cyber Security Community. In this paper, you will find everything that has caught our attention since the last time: news, articles, papers, Space CTI, videos, webinars, events, attacks, podcats …

For this first Space and Cyber Security Watch, we catch up on the news since the beginning of the year.

I would like to thank Coreteam members of the Space Cyber Security Community for their help in this work. It's not exhaustive, so comments and observations are welcome.

Table of contents

1. **News of the latest Attacks on Space Systems**

- (EN) Attack on JAXA: Chinese military seen behind Japan cyberattacks, a hacker group linked to the PLA conducted attacks on nearly 200 companies and research institutes in Japan, including the Japan Aerospace Exploration Agency.

- (EN) SpaceX seemingly takes steps to protect telemetry data after leak

- (EN) How Amateur Radio Fans Decoded SpaceX's Telemetry & Engineering Video

- (EN) SpaceX employee admits security fraud, insider trading on dark web

2. **List of new Articles**

January 2021

- (EN) Hacking Satellites with $300 – Worth of TV Gear, by Jack Berning

February 2021

- (EN) It's time to declare space systems as critical infrastructure, a Politico article

March 2021

- (EN) Securing the twins: Space and cyber can't exist without each other … Space and cyber represent critical infrastructure twins, born of the same era, that also represent the next warfighting domains

April 2021

- (FR) "Cyberespace : une intersection redoutable ? , un article paru dans le magazine DSI (Défense & Sécurité Internationale), rédigé par le chef d'escadron S. M., les capitaines A. E. et D. R., stagiaires de l'EMSST, le capitaine T. W., stagiaire du CEMSAir, officiers suivant le mastère spécialisé « Conduite des opérations et gestion des crises en cyberdéfense ».

- (EN) The vulnerability of satellite communications by Thorsten Stremlau

- (EN) The United States is to launch a dedicated joint cyber center to promote integration between US Space Command and US Cyber Command by Sarah Coble

- (EN) DoD space agency: Cyber attacks, not missiles, are the most worrisome threat to satellites – SDA director Derek Tournear: It

doesn't matter if I have one satellite or if I have 1,000 satellites, a cyber attack could taken them all out

- (EN) Conjunction risk drives need for information sharing (op-ed)

- (EN) Cybersecurity for smallsats – 5 key concepts explained

- (EN) Space jam: Researchers and satellite start-ups meet to discuss celestial cybersecurity

- (FR) Merci « Perseverance » ! Le logiciel libre arrive sur Mars, un article d'Aurélie Jean dans le Point

- (EN) #LORCALive: Cybersecurity to Play a Key Role in Supporting Growing Space Sector

3. CYSAT'21

- (EN) CYSAT'21 – The 1st European executive event dedicated to cybersecurity for the space industry

- (EN) CYSAT '21, a space cybersecurity conference : Full Keynotes and Presentations

4. Space ISAC (Space Information Sharing and Analysis Center)

- (EN) Space ISAC Selects Cyware for Automated Threat Sharing

- (EN) Space ISAC announces initial operating capability for threat information sharing

- (EN) ISAC Ventures Into Space Information Sharing, a great article on Space ISAC information sharing from AFCEA's Signal Magazine!

- (EN) Space ISAC Podcast Episode #1: What is Space ISAC? feat. Erin Miller, Executive Director, Space ISAC

- (EN) Space Isac has relesased his new newsletter
  - o Cyware Labs has been selected to provide the organization's member sharing portal and threat intelligence platform.
  - o Space ISAC members onboarded and trained on the Cyware platform
  - o Space ISAC declares Initial Operating Capability
  - o Preparing to launch the Supply Chain Risk Management Working Group
  - o Analyst Working Group distributes first Monthly Threat Report to all Space ISAC members

5. SPD-5 : National Space Policy Directive 5

(EN) On September 4, 2020, U.S. President Donald Trump issued Space Policy Directive 5 (SPD-5), known as the "Cybersecurity Principles for Space Systems", on the cybersecurity of space systems and their supporting infrastructure

(FR) Le 4 septembre 2020, le Président des États-Unis Donald Trump a promulgué la Space Policy Directive 5 (SPD-5) dite « Cybersecurity Principles for Space Systems » relative à la cybersécurité des systèmes spatiaux et de leurs infrastructures de support

- (EN) Fact Sheet : President Donald J. Trump is Establishing America's First Comprehensive Cybersecurity Policy for Space Systems (PDF – 2 pages)
- (EN) Memorandum on Space Policy Directive-5—Cybersecurity Principles for Space Systems | The White House (PDF – 6 pages)
- (FR) Note sur la Space Policy Directive 5 (SPD-5) – Cybersecurity Principles for Space Systems
- (EN) Establishing Space Cybersecurity Policy, Standards, and Risk Management Practices, a paper written by Brandon Bailey (PDF – 15 pages)

6. AsterX: First french military exercise in space

(EN) France is conducting its first military space exercise to assess its satellite protection and surveillance capabilities in a now militarised space.

(FR) La France mène son premier exercice militaire spatial afin d'évaluer ses capacités de protection de ses satellites et de surveillance dans un espace désormais militarisé.

- (EN) France conducts first military exercises in space
- (FR) AsterX : ce qu'il faut savoir sur le premier exercice spatial français de l'Histoire
- (FR) Guerre de satellites, combattants de l'espace, en quoi consiste l'exercice AsterX ?
- (FR) [WebTVAIR] Épisode 34 – AsterX 2021, premier exercice sur l'espace en Europe (Vidéo)
- (FR) "Combattants du spatial": les enjeux d'AsterX, premier exercice militaire spatial français.

- (FR) 5 questions sur "AsterX", le premier exercice militaire de la France dans l'espace (Vidéo)
- (FR) Tout comprendre – L'exercice militaire spatial AsterX, une première pour la france

7. War in Space

- (FR) La militarisation de l'espace : quels enjeux pour aujourd'hui et demain ? par Jean-Daniel Testé
- (FR) Penser la guerre dans l'espace. Quels fondements conceptuels ? par Patrick Bouhet
- (FR) Quel cadre juridique pour les conflits spatiaux de demain ? by Chloé Duffort, doctorante Chaire Défense & Aérospatial, Sciences Po Bordeaux

8. Some good Papers

- (EN) Anti-satellite Missile, interesting paper on India's ASAT program published by Indian Ministry of Defense (PDF – 52 pages)
- (EN) Defense Against the Dark Arts in Space, a report of the CSIS Aerospace Security Project by Todd Harrison, Kaitlyn Johnson, Makena Young (PDF – 53 pages)
- (EN) The Future of Security in Space: A Thirty-Year Us Strategy, a report of Atlantic Council. A Must-Read (PDF – 105 pages)
- (EN) Foundational PNT Profile: Applying the Cybersecurity Framework for the Responsible Use of Positioning, Navigation, and Timing (PNT) Services, a Publication of NIST about Foundational Profile for Secure GPS Use (PDF – 115 pages)
- (EN) Cyber Threats and NATO 2030: Horizon Scanning and Analysis (PDF – 267 pages)
- (EN) Secure World Foundation – Global Counterspace Capabilities – An Open Source Assessment (PDF – 238 pages)
- (EN) Smallsats and mega-constellations for U.S. national security: Some legal aspects (PDF – 121 pages) – See resume here

9. Videos

- (EN) Hacking Satellites with $300 Worth of TV Gear. This student discovered that satellite security isn't as stable as one may expect. So he decided to hack one.

- (EN) Cyber Security in Space: Designing Space Systems for Mission Surety by MITRE
- (EN) The United States Space Force Approach to Cybersecurity | SCS 2020, Space & Cybersecurity Symposium 2020 conversation with Lieutenant General John F. Thompson, Commander, Space and Missile Systems Center, Los Angles Air Force Base, CA, USAF.

10.   Webinars to review

- (EN) Weinstein Discusses Space Force & Cybersecurity with BU Alumni, a Space and Cybersecurity Webinar
- (EN) 2021 PGS Workshop – Sustainability and the Future of Space – Virtual Event Hosted by Florida Tech – Melbourne, Florida
    - o Safe Space Operations – Link to Recording – Click Here
    - o Cyber Security – Link to Recording – Click Here

(EN) SGAC Space and Cybersecurity Project Group organized (on April 14, 2021) its 5th webinar featuring Prof. Gregory Falco discussing "Side-stream satellite cyber considerations" and Ms. Alexandra Stickings exploring "Difficulties in defining cyber-attacks in space".

11.   Podcasts

- (EN) Space ISAC Podcast Episode #1: What is Space ISAC? feat. Erin Miller, Executive Director, Space ISAC

12.   Upcoming Events

- (EN) Securing Software-Defined Satellites (Wednesday May 5, 2021)
- (EN) Inaugural Space Cybersecurity Symposium – on May 5, 2021 (Virtual Event) a conference organized by NIST. This event is jointly hosted by the Department of Commerce (DOC) and Department of Homeland Security (DHS)
- (EN) SpaceOps 2021 – The 16th international conference on space operations (3-5 May 2021) will be virtual and free and has a cyber session, with a co-chair from CNES (Centre national d'études spatiales – French national space center)
- (EN) IAF's IAC 21 in Dubaï – 72nd International Astronautical Congress 2021 (25-29 October 2021, Dubai, United Arab Emirates) will have two (yes 2!) security sessions :
    - o D5 is 54th IAA Symposium on Safety, Quality and Knowledge Management in Space Activities (D5.4 will be more technical

: Cybersecurity in space systems, risks and countermeasures)

- o E9 is IAF Symposium on Space Security (E9.2 is more strategic and legal focused : Cyber-based security threats to space missions – establishing the legal, institutional and collaborative framework to counteract them)

- o Papers have been selected and the program will be published shortly