



WASHINGTON, DC

DAVID S. KEIR
202.416.6742
DKEIR@LERMANCENTER.COM

February 18, 2019

VIA IBFS

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Kinéis, Petition for Declaratory Ruling Pursuant to Section 25.137 of the Commission's Rules Seeking Access to the U.S. Market for an NVNG MSS Satellite Network (File No. SAT-LOI-20191011-00113) – Ex Parte Notice

Dear Ms. Dortch:

On February 13, 2020, Michel Sarthou, Chief Technical Officer of Kinéis; Rémi Ferrier, Chief Product Officer of Kinéis; Jean Pla, Spectrum Management Officer of the Centre National D'Études Spatiales ("CNES"); Laurent Combelles, Frequency Coordination Expert with Thales Alenia Space; and the undersigned, David Keir, Counsel to Kinéis, met with Jose Albuquerque, Kathryn Medley, Jay Whaley, Jameyenne Fuller and Samuel Karty, as well as Karl Kensinger (participating by phone), to discuss the above-referenced Petition for Declaratory Ruling ("Petition") that is pending before the Satellite Division. The discussion was guided by two slide presentations, copies of which are attached to this letter.

Discussion at the meeting focused on five principal topics. First, Mr. Pla of CNES presented background information regarding the role of Kinéis as an extension and expansion of service capabilities that have been utilized for more than three decades by the United States and other governments using the ARGOS system, a long-term collaboration between CNES and the U.S. National Oceanographic and Space Administration ("NOAA"). *See* Attachment 1. Mr. Pla noted the present limitations of the legacy ARGOS satellites, which operate in only three orbital planes and thus have limited revisit performance. The Kinéis multi-satellite, five-plane network architecture utilizing non-voice, non-geostationary ("NVNG") Mobile-Satellite Service ("MSS") frequency bands in addition to Earth-Exploration Satellite Service ("EESS") spectrum will provide both continuity of existing services and substantially expand the capabilities available to system users.



Second, Mr. Sarthou explained the origins of and timing for implementation of the Kinéis satellite network, which is expected to launch in 2022. *See* Attachment 2. The enhanced service, using both EESS and MSS spectrum will permit significant new applications beyond the scientific and maritime communities that ARGOS has traditionally served. Mr. Ferrier explained that these new users would include a broader range of maritime users, Internet of Things monitoring and data collection, outdoor sports and boating safety, system logistics, food security and wildlife monitoring. This segment included discussion in response to staff questions regarding the options for hybrid integration of satellite and terrestrial devices to serve some of these users.

Third, Mr. Sarthou provided a brief overview of the technical aspects of the system, including the spectrum usage, orbital architecture, and capability for dual use of the small satellite platforms for miniaturized payloads. *See* Attachment 2. For example, Kinéis will deploy on one of the five satellites in each of its orbital planes both a primary ARGOS payload and a second Automatic Identification System (“AIS”) payload for maritime users. During this segment, there was discussion in response to staff questions of the network’s means of avoiding in-orbit collisions for purposes of mitigating orbital debris.

Fourth, Mr. Sarthou, Mr. Pla and Mr. Combelles discussed progress made in recent coordination discussions with both U.S. government agencies using the requested bands, including NOAA, as well as other companies planning to provide similar services in the NVNG MSS bands, principally the other applicants in the current processing round. Kinéis reported that there have been productive discussions with respect to both the government and non-government users operating in the subject frequency bands. In this connection, members of the FCC staff assisted with identifying certain spectrum users that have submitted advance publication information to the International Telecommunication Union with respect to the 400.15-401 MHz band.

Fifth, Mr. Ferrier and I reviewed the processing timeline for the Petition. There was a brief discussion regarding next steps toward resolving the current processing round, including the placement of the Petition on Public Notice as accepted for filing. Kinéis requested that its Petition be processed and acted upon contemporaneously with the other applications and petitions in the current processing round.

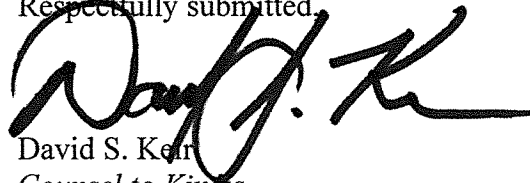
This letter is submitted in the above-referenced file in accordance with Section 1.1206(b) of the Commission’s Rules (47 C.F.R. §1.1206(b)) and the Public Notice establishing the current processing round for applicants seeking access to the NVNG MSS bands at 399.9-400.05 MHz and 400.15-401 MHz for provision of service to the United States. *See* FCC Public Notice, “Satellite Policy Branch Information, Myriota Pty. Ltd. Petition Accepted for Filing, IBFS File No. SAT-PDR-20190328-00020; Cut-Off Established for Additional NVNG MSS Applications or Petitions for Operations in the 399.9-400.05 MHz and 400.15-401 MHz Bands,” Report No.

LS

Marlene Dortch, Secretary
February 18, 2020
Page 3

SPB-277, DA 19-779, at 2 (released August 15, 2019) (establishing treatment of all applications in the processing round under the “permit-but-disclose” provisions of the *ex parte* rules).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David S. Keir". The signature is fluid and cursive, with a large initial "D" and "K".

David S. Keir
Counsel to Kinetics

Enclosures (2)

cc (by email): Jose Albuquerque
Karl Kensinger
Kathryn Medley
Jay Whaley
Jameyanne Fuller
Samuel Karty



ARGOS Legacy Kinéis
Washington DC
CNES / Kineis / FCC meeting
February 2020

SUMMARY

- ❖ Agenda
- ❖ Why Kinéis: a CNES perspective
- ❖ Issues raised for Kineis

AGENDA CNES-FCC

13 February 2020 meeting CNES-FCC

10:00 am – 12:00 pm

- ❖ Opening of the meeting
- ❖ Kineis detailed presentation on A4NG/Kineis purposes and plans
- ❖ Desired operation of MSS (399.9-400.05 MHz band Earth-to-Space, 400.15-401 MHz Space-to-Earth down to terminals), 2200-2290 MHz Space to Earth for Satellite telemetry in the space operation service
- ❖ Coordination process with US operators
- ❖ actions if needed
- ❖ Minutes of the meeting

Why Kinéis: a CNES perspective

- ❖ ARGOS Legacy: CNES / NOAA partnership for more than 30 years for Satellite Data Collection System (DCS).
 - Operation within the frequency band 401-403 MHz.
 - New frequency band 399.9-400.05 MHz on Oceansat3, Hops, Metop-SG for ARGOS-4.
- ❖ Only 3 orbital planes covered by ARGOS-4 payloads for the ARGOS Legacy. Limited revisit performance
- ❖ Need to ensure the continuity of the service provided by ARGOS and to improve revisit performance
- ❖ New Space business model enabling cost reduction for end user

Kinéis issues

- ❖ Petitions for Declaratory Ruling SAT-LOI-20191011-001, including :
 - MSS uplink 399.9-400.05 MHz, Earth to space
 - MSS downlink 400.15-401 MHz, space to Earth
 - Satellite TM downlink 2200-2290 MHz, space to Earth
- ❖ On going discussions with NOAA, NASA, DOD and US operators for Satellite Network filing coordination.



Washington DC - February 2020

Context

- The Argos system was **created in 1976** by CNES, NASA and NOAA.
- In **1986**, operations and commercialization of Argos were transferred to **CLS**, which became the « CNES agent ». There were 400 beacons in the system at that time.
- In 2015 CNES – NOAA – EUMETSAT – ISRO decided to extend the Argos System with 4 new payloads ARGOS 4 and the ability to use new frequency bands including MSS band.
- In **2019**, CLS created **Kineis** which became the “CNES agent”, operating the existing Argos system and developing a new constellation.





ARGOS, an historical satellite service that needs enhancement to continue writing the pages of scientific history

20 000 beacons over the world

US applications accounts for 50% of the Argos system usage (Wildlife / Oceanography / Governmental)



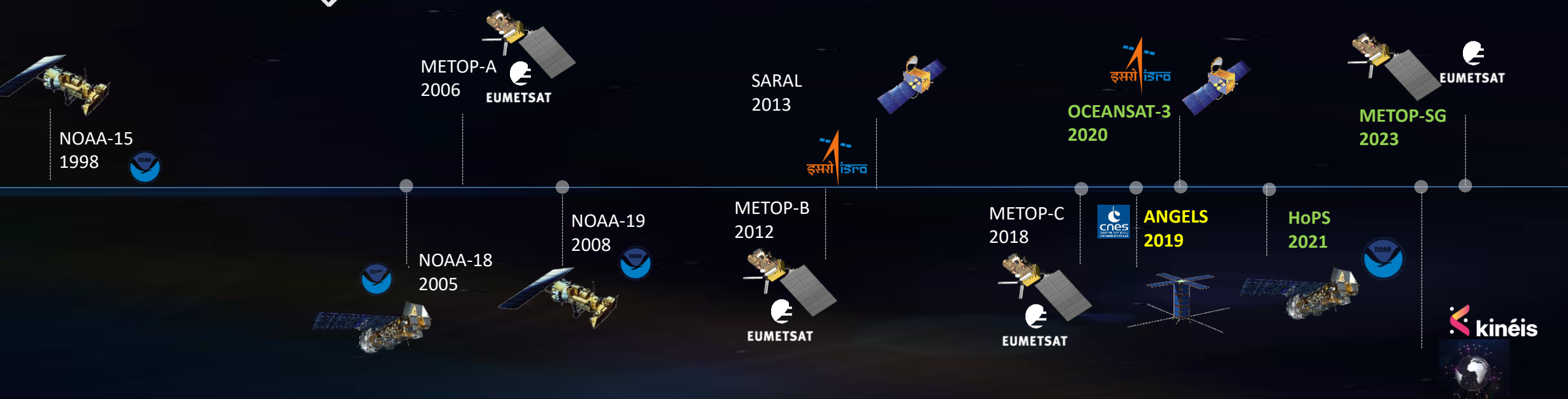
Kineis is an extension of the Argos System

Feb 2020



7 operational satellites + 1 in IOV (Angels)

+3 (Argos-4) to be launched in 2020-2023



+25 Nanosats constellation in 2022



Argos System : Legacy + Kineis

- **Enhanced system** for the benefit of Science and protection of the Environment
- Opportunity to **deploy new applications** in Science, environmental monitoring and new markets thanks to better performance and improved chipset
- **Cost reduction for Users** due to enhanced capacity and more customers using the system (environmental and non-environmental users)



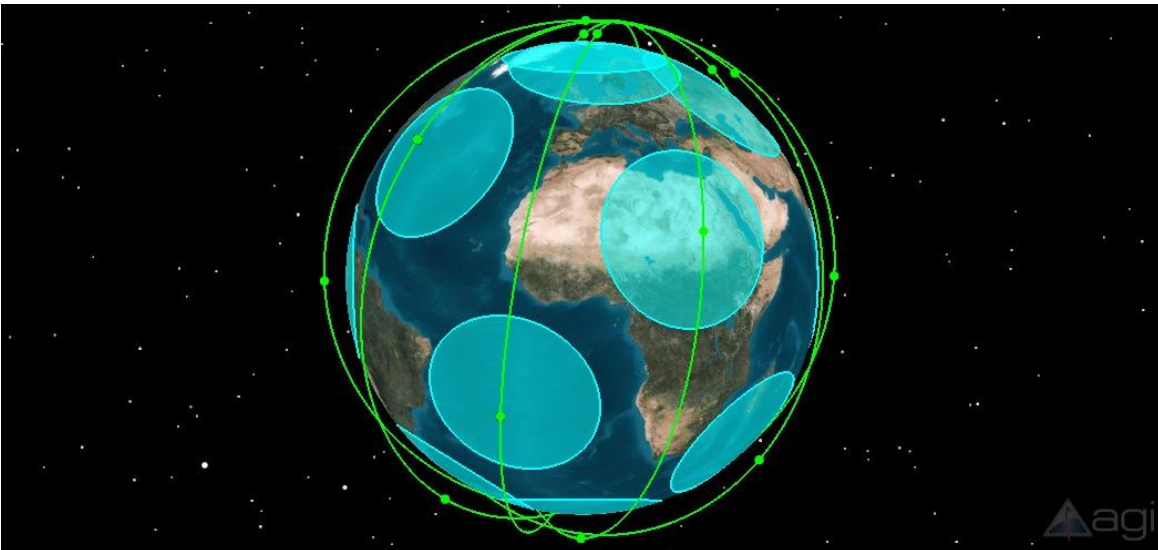
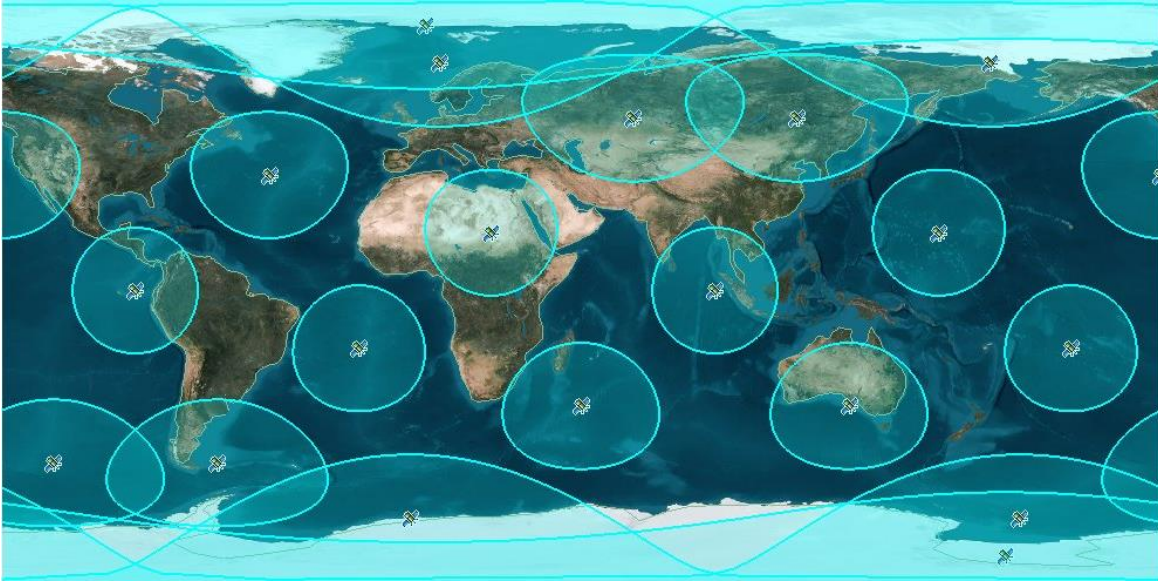
Kineis applications: diversification and expansion of the Argos System





Kinéis Technical System Overview

Constellation



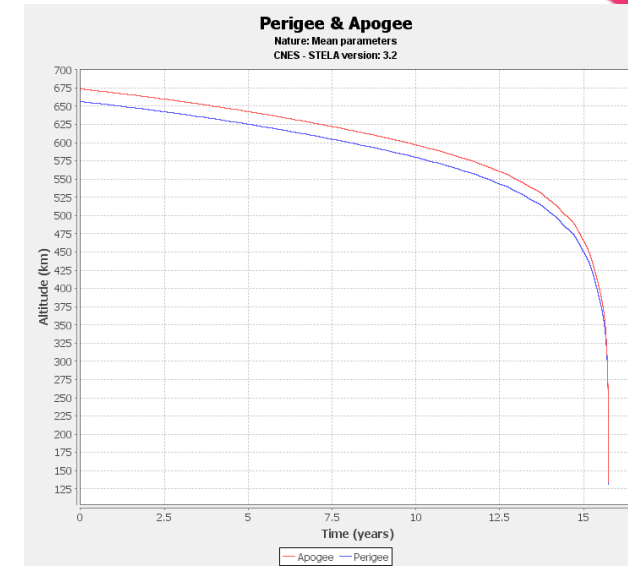
- ❑ 25 satellites constellation @ 650 km of altitude
 - 5 satellites per orbital plane (5 planes)
 - Helio-synchronous Orbit ($97,8^\circ$)
- ❑ 1 ARGOS payload on every satellite. Total of 25 ARGOS payloads.
- ❑ 1 « High Performance » AIS payload on 2 satellites per plane: detection of 90% of the ships in high density areas Total of 10 AIS payloads.
- ❑ ARGOS Revisit < 15-20 min (90%)
- ❑ AIS Revisit < 2h30 (90%)

Satellite

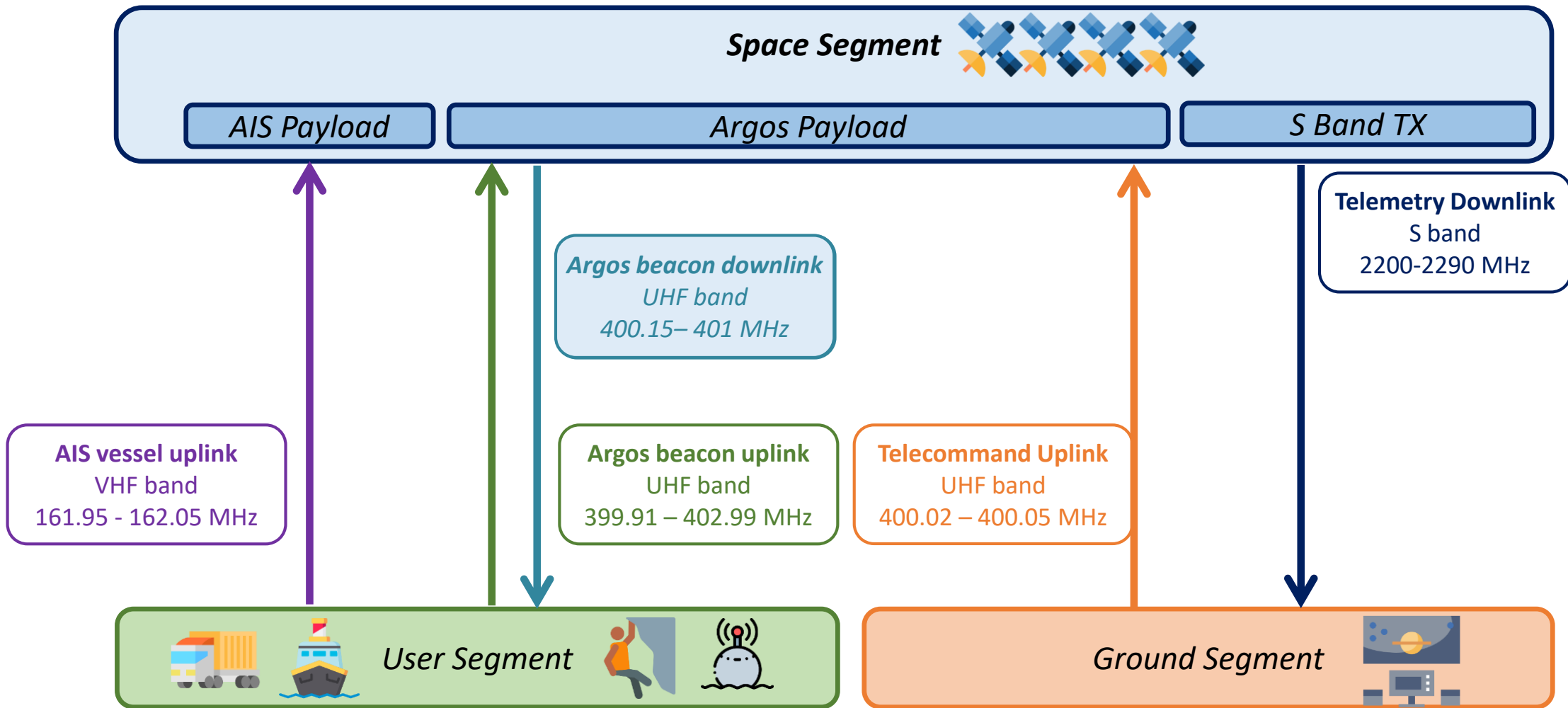
- ❑ 16U Cubesat
 - Able to embark 2 missions : Argos + AIS, possibility to embark another mission on satellites having only Argos on-board

- ❑ Electrical Propulsion
 - To ensure the position (phasing) on the plane then constellation control (on every orbital plane)
 - Collision avoidance capability

- ❑ 3 axis Stabilization, typical pointing : 1° (3° @ 3 sigma)
- ❑ Life duration : 8 years / 16 years natural reentry
- ❑ ANGELS Heritage developed by **HEMERIA** with **CNES** support.



Communications Architecture



US Licensing timeline – to date

- October 2019 : Petition for Declaratory ruling submitted
- December 11th 2019 : Complementary information requested by FCC
- January 13th 2020 : Answers from Kinéis
- February 10th-12th : Coordination meetings with NOAA / DoD / NASA
- February 13th : Kinéis - FCC meeting

Intersystem sharing in the 399.9-400.05 MHz band (1/2)

- All applicant's systems use short bursts/ low duty cycle transmissions:
 - Burst collisions are a normal situation in this type of systems and may occur between different systems or within a given system (random access).
 - Burst collisions remain statistically unfrequent when the number of satellites and transmitting devices remain limited.
- Kinéis has engaged coordination with the other applicants towards a better understanding of each system operations and an optimized use of the band.

Intersystem sharing in the 399.9-400.05 MHz band (2/2)

- Segmenting the 399.9-400.05 MHz band among the several systems would be sub-optimal
 - Different markets addressed by the various systems lead to a differentiated demand in time and space: a rigid band segmentation would not allow to allocate resources where and when needed
 - Band segmentation is technically not required because the candidate systems are inherently resilient to burst collisions
 - Systems are at different stages of development. Unnecessary limitations on spectrum access could hamper the provision of services by the most advanced systems.
- All systems should have an opportunity to enter the market and develop in the whole band. Band saturation is a long term perspective at this stage.



Merci!

www.kineis.com

info@kineis.com