

*HYBRIDS IN NEED OF SAFETY
STANDARDS: IS IT TIME FOR A SPACE
TRAFFIC CONTROL AUTHORITY?*

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Isavella Maria Vasilogeorgi, LL.M.

Hybrid Aerospace Objects

- **The Space Shuttle**
- **Virgin Galactic:** “SpaceShip II & The White Knight”, estimated first flight Dec 2013, capacity: 6 pax + 2 pilots
- **Space X:** “Dragon & Falcon 9”, first flight May 2012 (cargo), capacity: up to 7 crew
- **Excalibur Almaz:** “Reusable Reentry Vehicle & Salyut-Class Spacecraft”, estimated first Lunar flight 2015, capacity: 3 pax + 1 crew
- **Reaction Engines:** “Skylon” with “Sabre” engine (under development)

Modes of Flight

Space Tourism

- Same place as point of origin and destination.
- Short time “floating” in outer space (lower LEO).
- Domestic (?) flight.

Transportation *via* Space

- Different places as points of origin and destination, mostly located in different States.
- Longer presence in outer space, potentially higher altitude (LEO).
- International flight.

Issues currently identified by literature

- Delimitation of airspace / outer space boundary.
- Liability for accident.
- Registration of HASV.
- Certification of HASV and crew. “Astronauts” ?
- Environmental concerns.
- Traffic Control and Navigation Services.

The Navigable Domains

Sea

- Freedom of navigation in high seas; limited navigational rights in territorial sea (“innocent passage”).
- UNCLOS codifies jurisdictions and freedoms in different maritime zones.
- Customary and conventional international law

Airspace

- Absolute sovereignty over national airspace; freedom of flight in international airspace.
- Division of airspace in FIRs, encompassing national and international airspace.
- Decision of international organization (normativity issues).

Outer Space

- Principle of non-appropriation of outer space, as instant customary international law (see OST art. II).
- Freedoms of use, exploration and exploitation, but with due regard for interests of other States.
- Impossibility of absolute sovereignty or exercise of exclusive sovereign rights by any State.

Unilateralism v. Coherence: The creation of safety standards in air & space

- Individualistic approach in creation of standards, per State and mission.
- Tautologies mere scientific coincidence.
- Conduct reinforced by freedoms of use & exploration and by non-appropriation principle.
- Uniform promulgation of standards through ICAO.
- Applicable in national and international airspace.
- ANS over international airspace, by *delegation* of authority, tantamount to exercise of sovereign rights.

An International Organisation for SNS /STCS

- Avoidance of multiple layers of (conflicting) bilateral navigation agreements.
- Better corresponds to jurisdictional needs of outer space.

Can ICAO be the one?

Advantages

- It already exists!
- Similar authority.
- Extension of mandate.

Disadvantages

- Not really efficient.
- Lacks technical capacity.
- Delegation of responsibility inescapable, but *contra legem*.
- Bypassing UNCOPUOS.

One SNS/STCS Authority “to rule them all”

- Need to bring forth the **legal** elements before the technical.
- An organisation addressing the characteristic elements of outer space.
- Best solution to the jurisdictional exclusion of States.
- “Adaptive management”.
- Independent, plenipotent, with true capacity for “global governance”.



Thank you