

# Académie de l'Air et de l'Espace

## Regulation of space activities in Europe

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# What is space law?

- Law governing space activities
- Where does space begin?
  - Discussion since 40+ years
  - Air: sovereignty (air law)
  - Outer space: freedom of use (space law)

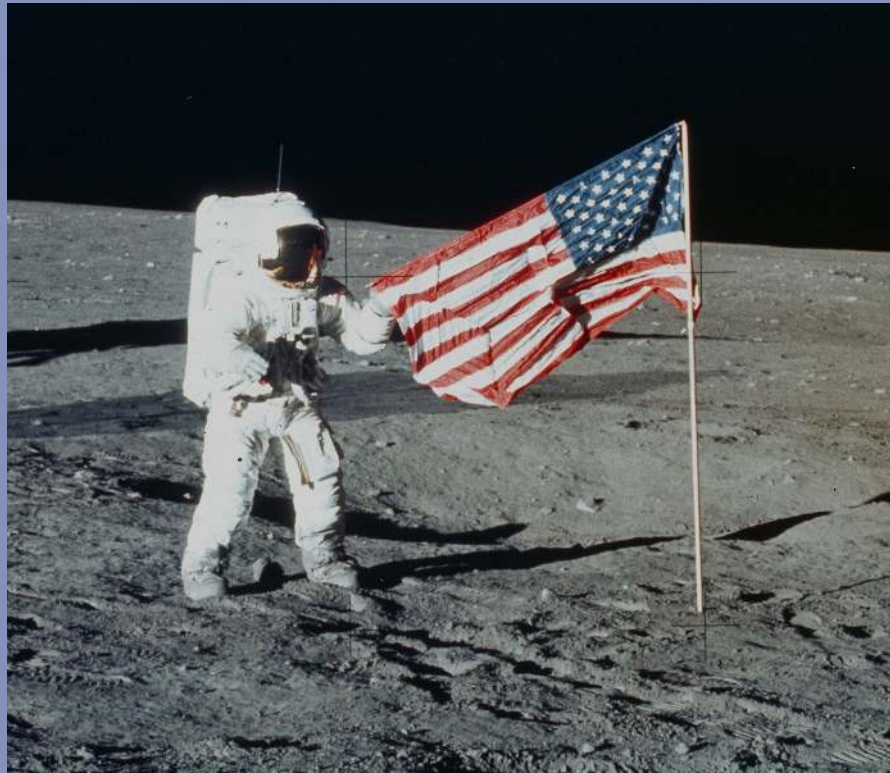


# UNCOPUOS: 5 Space Treaties

- Outer Space Treaty - 1967
  - ‘Constitution’ of outer space
- Rescue Agreement - 1968
  - Legal status of astronauts, accidents
- Liability Convention- 1972
  - Damage in space, in the air or on the ground
- Registration Convention – 1975
  - Objects must be registered nationally and with UN
- Moon Agreement - 1979
  - Exploitation of resources

# Main principles

- Exploration and use of outer space & celestial bodies is 'free'
  - For the benefit and in the interests of all states
  - Province of all Mankind
- Appropriation of outer space and celestial bodies is forbidden
  - No sovereignty in space!
- Int. law & UN Charter apply



# Main principles (2)

- Outer space is partially demilitarized
  - No nuclear weapons anywhere; celestial bodies for peaceful purposes only
- Astronauts are 'envoys of mankind'; support
- States are internationally responsible
  - Also for private enterprises /individuals
  - Authorization & continuing supervision
- Launching states are liable for damage
  - Often mandatory insurance in national law
- 'State of Registry' retains jurisdiction/control
  - Registration is mandatory (UN & national)
- No interference/harmful contamination

# National implementation

- Private commercial space activity growing
- Must be authorized & supervised (art. VI), e.g. via national legislation
  - Licensing
  - Liability insurance
  - Right of recourse
  - Registration
  - Generally: make sure the company does not violate treaty obligations of the state

# Europe?

- ESA
- EU
- Member states

# European Space Agency

- 1975 Convention for the Establishment of a European Space Agency (in force 1980)
- [www.esa.int](http://www.esa.int)
- Purpose: “To provide for and promote, for exclusively peaceful purposes, cooperation among European states in **space research and technology** and **their space applications**”





# How?

- Pool material & technical resources member states at **national** level
- Integrate national space programmes as much as possible at **European** level
- Strengthen European space efforts for exclusively peaceful purposes at **global** level

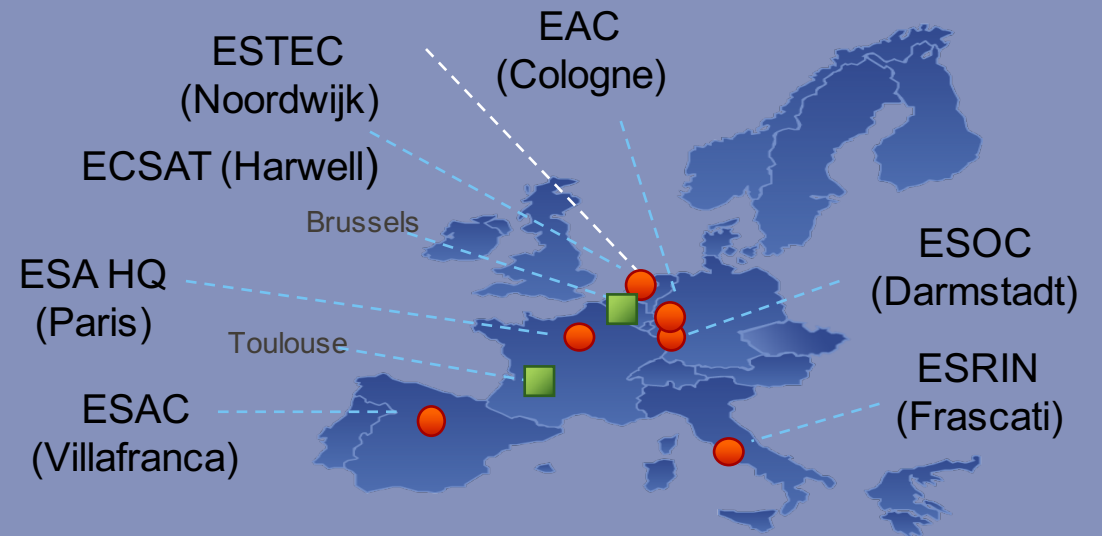
# 22 Member States

- Austria, Belgium, Czech Rep., Denmark, **Estonia**, Finland, France, Germany, Greece, **Hungary**, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, UK
- Canada: cooperation agreement, sits on Council
- Bulgaria, Latvia, Lithuania, Slovakia, Slovenia: 'PECS', [http://www.esa.int/About\\_Us/Plan\\_for\\_European\\_Cooperating\\_States](http://www.esa.int/About_Us/Plan_for_European_Cooperating_States)
- Cyprus, Malta: Cooperation Agreement; Croatia: not yet



# ESA Establishments

- Establishments & Centres
- Offices



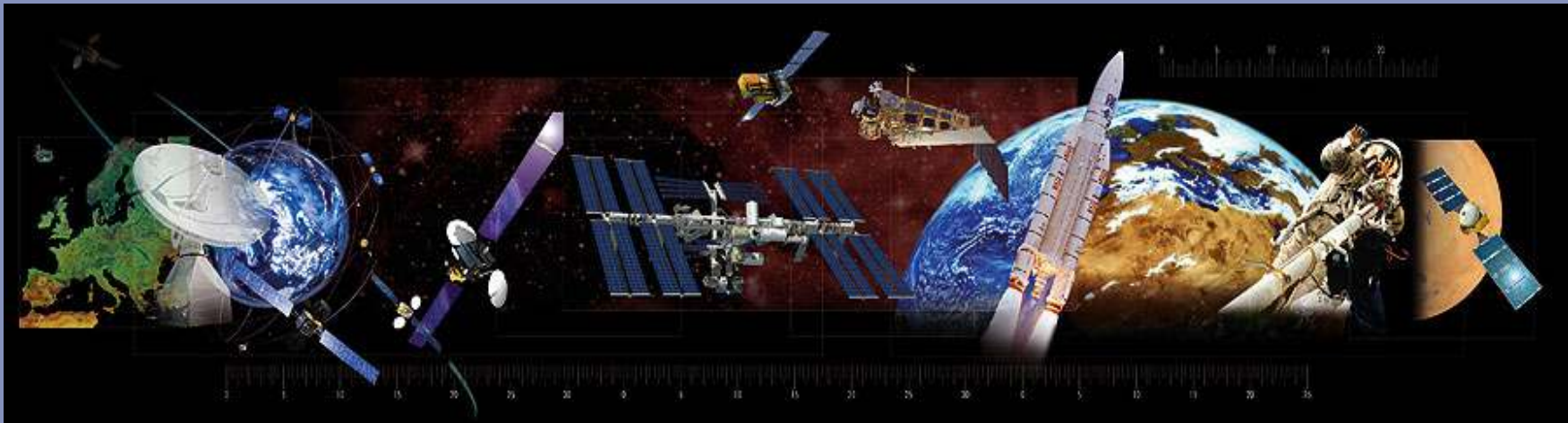
# Institutional structure

- Two main organs:
  - Council of member states
    - Governing body
    - One state, one vote
  - Director General
    - CEO & legal representative



# ESA Fields of Activity

- Science & robotic exploration
- Human Spaceflight
- Earth Observation
- Telecommunications
- Navigation
- Launchers
- Space Technology



# Mandatory activities

- All Member States participate (on GNP basis) in activities related to Space Science & a common set of programmes
- Council approves programmes, determines level of resources, and member states contribute per pre-set scale
  - Ex:
    - **General Budget**, future studies, technological research, education, common investments (facilities, laboratories, basic infrastructure)
    - **Science**: Solar System science, astronomy, fundamental physics

# Optional activities

- Members choose level of participation
- Activities of practical nature:
  - Design & development, construction, launching etc.
- Council accepts programs, member states may opt in, and contribute according to their interests (à la carte)
- About 80% of ESA budget = optional!
  - Ex: Human spaceflight (ISS), Telecommunications, Earth observation, Launchers (Ariane, Vega, Soyuz from Kourou), Navigation, Robotic exploration



# General industrial policy

- Promoting cost-effectiveness
- Improving world-wide competitive industry
- Using existing industrial potential Europe
- Preference for European industry
- Equitable member state participation
- Exploit advantages competitive bidding



# ‘Fair Return’ principle

- Preference for industry & organisations of member states, resp. member states participating in that programme
- Geographical distribution
  - Ideal = return coefficient of 1, some weighting possible
  - Nowadays, ‘fair return’ diluted

# ESA Ministerial Council '14

- At last MC in 2012 in Naples, €10 bln was allocated for ESA's space activities and programmes
- In 2014, €5.9 bln
  - 4.3 for launchers
  - 0.8 for ISS (until 2020)
  - 0.1 for Exomars
  - 0.7 for other programmes
- Next Ministerial Council : Dec. 2016 in Switzerland

# ESA MC '14 (2)

- EU-ESA relations:
  - Longstanding cooperation
  - EU finances Galileo & Copernicus
  - EU-ESA 'Delegation agreements' on Galileo and Copernicus
  - Plan for a new Framework Agreement EU-ESA to rethink /revitalize mutual relationship

# ESA MC '14 (3)

- 3 Resolutions adopted
  - [http://esamultimedia.esa.int/docs/corporate/Final\\_resolutions\\_1\\_2\\_3\\_from\\_CM\\_2014\\_Releasable\\_to\\_the\\_public.pdf](http://esamultimedia.esa.int/docs/corporate/Final_resolutions_1_2_3_from_CM_2014_Releasable_to_the_public.pdf)
  - Resolution on Europe's access to space, covering the development of Ariane 6 and Vega C
  - Resolution on Europe's space exploration strategy, covering ESA's three destinations for exploration (LEO, Moon and Mars)
  - Resolution on ESA evolution, covering the vision for ESA until 2030



# EU



# Space: key asset for Europe

- Social, economic, strategic
- Space is an 'enabling tool':
- Response to critical challenges (climate change, global security)
- Growth & employment
- Technologies for knowledge-based society
- Security interests
- Understanding of planet, Universe
- European identity, cohesion, inspiration



# EU space programmes

- Satellite navigation
  - Galileo/EGNOS provide positioning, navigation, and timing information worldwide
- Earth observation
  - Copernicus provides Earth observation data /information
- Space research
  - Part of Horizon 2020 focuses specifically on space technologies, applications (e.g. GNSS & Earth observation), weather, sciences, exploration & other space related topics

# ESA-EU cooperation

- Incompatibility fair return/free competition
- Gradually converging
- 2000: European strategy for space
  - High level joint taskforce
- 2003: White Paper European space policy
  - Raise awareness strategic importance of space
- 2004 Framework Agreement
  - Recognise complementary strengths



# ESA-EU Cooperation

- 2004: 1st 'Space Council' : EU Council /ESA Ministerial Council
- EU & ESA distinct roles in space :
  - EU: regulatory & general
  - ESA: technical / operational, space-focused



# 2007: European Space Policy

- Adopted during the 4th Space Council
- Common political framework for space activities in Europe
- Basic vision and strategy for the space sector
- Tackles issues like security and defense!, access to space and exploration



# EU law & outer space

- Until Lisbon Treaty: no reference to ‘outer space’ in treaties or secondary law
- TFEU codifies space competence for the 1st time
  - Title 1 - EU Competences
  - Art. 3 exclusive / Art. 4 shared / Art. 6 support competence
  - Only exclusive & shared allow for adoption of regulations/directives/decisions
  - Space is mentioned in Art. 4(3), i.e. ‘shared’, but not in list...

# Art. 4(3)

- In the areas of research, technological development and space, the Union shall have competence to carry out activities, in particular to define and implement programmes; however, the exercise of that competence shall not result in Member States being prevented from exercising theirs
- Note: ‘normal’ shared competences (cf. transport!) are ‘subsidiary’ (pre-emption principle), but for space, the competences of EU and MS ‘co-exist’
  - Space = a ‘parallel competence’ ?

# Article 189

- 1.To promote scientific and technical progress, industrial competitiveness and the implementation of its policies, the Union shall **draw up a European space policy**. [...] it may promote joint initiatives, support research and technological development and coordinate the efforts needed for the exploration and exploitation of space
- 2.[..] the European Parliament and the Council [..] shall establish the necessary measures, which may take the form of a European space programme, **excluding any harmonisation of the laws and regulations of the Member States**
- 3.The Union shall establish any **appropriate relations with the European Space Agency**
- 4.[...]

# ESA, EU, MS and space law

- ESA made a declaration of acceptance of 3 treaties: ARRA, LIAB, REG
- EU has not
- Most EU members ratified the main instruments, but not all ratified OST:
  - Latvia (none)
  - Croatia/Malta/Slovenia (only ARRA, LIAB)
- So far, only 6 EU member states have a comprehensive national space law
  - SE, UK, BE, NL, FR, AT
  - + Norway (member of ESA), the oldest one

# EU study on national space law

- There are differences in legislation in EU
  - Liability, insurance
- Harmonization not allowed
- But EC conducts several studies, e.g.
  - Study on regulatory framework conditions for economic development of space products and services addressing “space law” issues such as authorisation, registration, liability and obligation of insurance of space activities
  - It could harm functioning of internal market, distort competition & lead to forum shopping

# EU study results

- 27 EU MS ratified at least 1 space treaty, 18 ratified the 4 main ones
- EU MS adopted legislation in reaction to evolving industry landscape, not as instrument to attract business
- Forum shopping not caused by differences in legislation, but by taxes, slots/frequencies
- EU climate may be more attractive than US (lower insurance, lower/no fees, more favourable liability regime)



# EU study results (2)

- Effect of differences in legislation negligible for large operators, but for SmallSats the differences may challenge the business (insurance, debris measures)
- Need for better info about MS activities
  - Reporting mechanism to collect MS data space activities in structured, regular manner

# Conclusions & Recommendations

- ESA and EU each have their own role
- ESA has long history and accepted the treaties
- EU as new owner/operator of space assets may be held liable for damage under the space treaties
  - EU needs to declare acceptance of UN treaties
- Some member states have not ratified the UN treaties but may participate in space activity through the EU
  - States must be encouraged to ratify the treaties
- Many member states have not enacted national space legislation although space activity increases
  - We need more national space laws

# Thank you!

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