

Liability for damage caused by small satellites – a non-issue?

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Liability in space law

- 1967 Outer Space Treaty (OST)
 - Art. VII – specific on liability
 - Art. VI – generic on responsibility
- 1972 Liability Convention (LC)
 - Elaborates Art. VII, OST
- National law
 - Following state liability at international level required for domestic implementation vis-à-vis private operators – mainly by way of licensing



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International baseline

- Liability for damage caused by space activities attaches to 'object launched into outer space' / 'space object' causing such damage
 - Liability rests with 'launching State(s)'
 - Absolute liability *versus* fault liability
 - In principle no limit to compensation



Are small satellites included?



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What is a 'space object'?

1. LC: 'component parts'

- Generally perceived to include 'space debris'
- ➔ 'Size' does not seem to matter

2. Authors: 'launched' 'into outer space'

- Or at least 'attempted to be launched'
- ➔ At least traditionally was not seen as presenting problems – all known satellites easily fit the bill, both in terms of 'launch' & in terms of 'into outer space'



What are 'small satellites'?

■ No *legal* definition – no treaty reference

- ↔ Number of general assumptions – *currently*
- ◆ Operate in (very) low earth orbits – or even in sub-orbital trajectories ↔ but later ...?
 - ◆ Operate for short periods only (as related to altitudes) ↔ but later ...?
 - ◆ Are 'unguided' / 'uncontrollable' – almost like 'space debris' ↔ but if lack of control over space debris (soon) may not take away liability anymore, how about such *functional* small space objects?
 - ◆ Would not survive re-entry ↔ but damage 'in space'?



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→ Challenges to definitions

■ On 'launch':

- Air-launched satellites? Sub-orbital spaceflight?
- ➔ 'Launch' developing from a specific technical/operational to a more general criterion: 'bringing an object into outer space'?

■ On 'into outer space'

- Sub-orbital flight to altitudes of just > 100 km
- ➔ Discussion on whether there **SHOULD** be a legal boundary between air space & outer space, & **WHERE** such a boundary would then have to be



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My take on this ...

■ YES – AT A 100 KM ALTITUDE

➤ Legal perspective: increasing convergence

P.M. Various private organizations & operators

- ◆ Various Russian proposals in UN context, incl. German & Pakistani answers to questionnaires
- ◆ Draft Russo-Chinese treaty 'de-weaponization' space
- ◆ National laws: Australia, Isle of Man
- ◆ EU definition of 'space qualified' technology

➤ Policy perspective: desirable for clarity

- ◆ Otherwise uncertainty as to applicability LC to low-orbiting & sub-orbital (small) satellites



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Otherwise ...

■ Applicability LC?

- Each time arguments: 'object intended to be launched into outer space'?
- Victims may seek alternative remedies:
 - ◆ Art. VI, OST: 'reparation' would be due for 'national activities in outer space' if in violation of OST / by proxy all of international space law, incl. material compensation if violation results in damage
 - ◆ General principles international law; *sic utere tuo ut alienum non laedas*; Trail Smelter arbitration
 - ◆ National law remedies ...



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National space laws (1)

- Liability through license
- Indirect references (1)
 - United States
 - ◆ Separates launch & satellite operations
 - ◆ Commercial Space Launch Act (1984/1988/2004)
 - Skirts issue of delimitation: licenses required also for air launched & sub-orbital, & regardless of size, as long as considered (ultimately) aimed at outer space
 - Sweden (1982 Act)
 - ◆ Excludes 'merely receiving signals or information' & 'sounding rockets' from scope



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National space laws (2)

- Indirect references (2)
 - South Africa (1993 Act)
 - ◆ Distinguishes between ‘sub-orbital trajectory’ & ‘into outer space’ (defined as per lowest perigee) – but does not principally differentiate in application
 - Australia (1998/2002 Act)
 - ◆ ‘Launch’ defined with reference to 100 km minimum altitude – decisive for applicability
 - Brazil (2001 Edict & Regulation)
 - ◆ Distinguishes between ‘orbital’ & ‘sub-orbital payloads’ – but does not differentiate



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National space laws (3)

- Indirect references (3)
 - Belgium (2005 Law)
 - ◆ Limits scope to 'launching, flight operations & guidance of space objects'
 - Netherlands (2007 Act)
 - ◆ Limits scope to 'launch, flight operation & guidance of space objects' – ***but now under scrutiny!***
 - Austria (2011 Law)
 - ◆ Limits scope to 'launch, operation & control of a space object' – 'control' seems to echo 'guidance' ...?



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National space laws (4)

- No relevant reference whatsoever to size, only to 'launch' into 'outer space'
 - Norway (1969 Act); United Kingdom (1986 Act); Russia (1993 Law); Ukraine (1996 Law); South Korea (2005 & 2007 Acts); France (2008 Law); Kazakhstan (2012 Law)
 - Individual exceptions however possible, e.g. in case not necessary from perspective of international obligations, public policy or safety licensing state



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Conclusions

■ Small satellites included in LC

➤ As far as 'launch' & 'into outer space' apply

↔ Half of national space laws do not even completely agree there ...

➤ *De facto* risks may be of different size – at least currently; future may well look different

➔ Many national laws allow for fine-tuning to risks

➔ ***Certainly not a non-issue ...***

... Further clarification / harmonization desirable ...



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