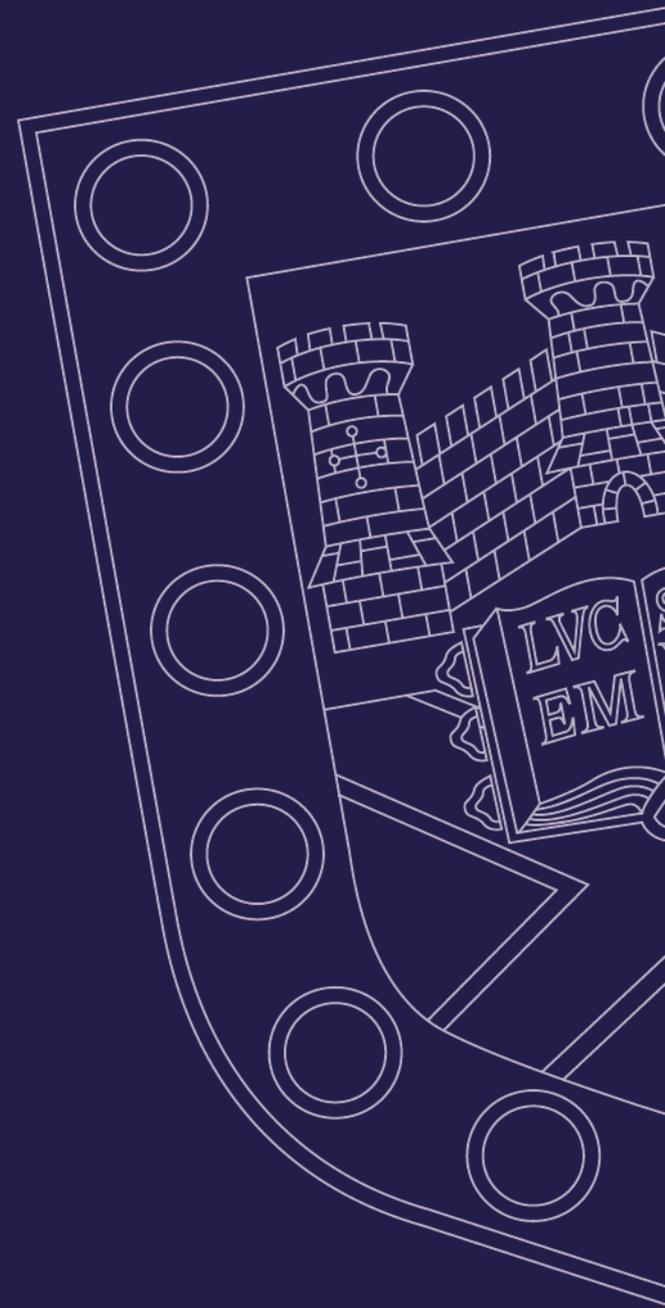


# Targeting in Complex Situations: Challenges for the Application of IHL in Cyberspace and Outer Space

*Silent Leges Inter Arma conference  
Bruges, 21 September 2017*

Dr Kubo Mačák, University of Exeter



# Outline

1) *Did we get it all wrong?*

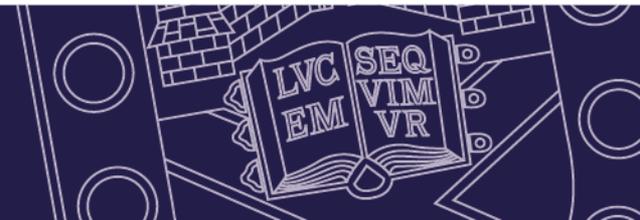
Predictions vs. reality

2) *Square peg in a round hole?*

IHL in cyberspace and outer space

3) *Can we get it right this time?*

Specific challenges for targeting



# (1) Predictions vs. reality: Cyber

“Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. **You have no sovereignty where we gather.**”

John Barlow, *A Declaration of the Independence of Cyberspace* (1996)

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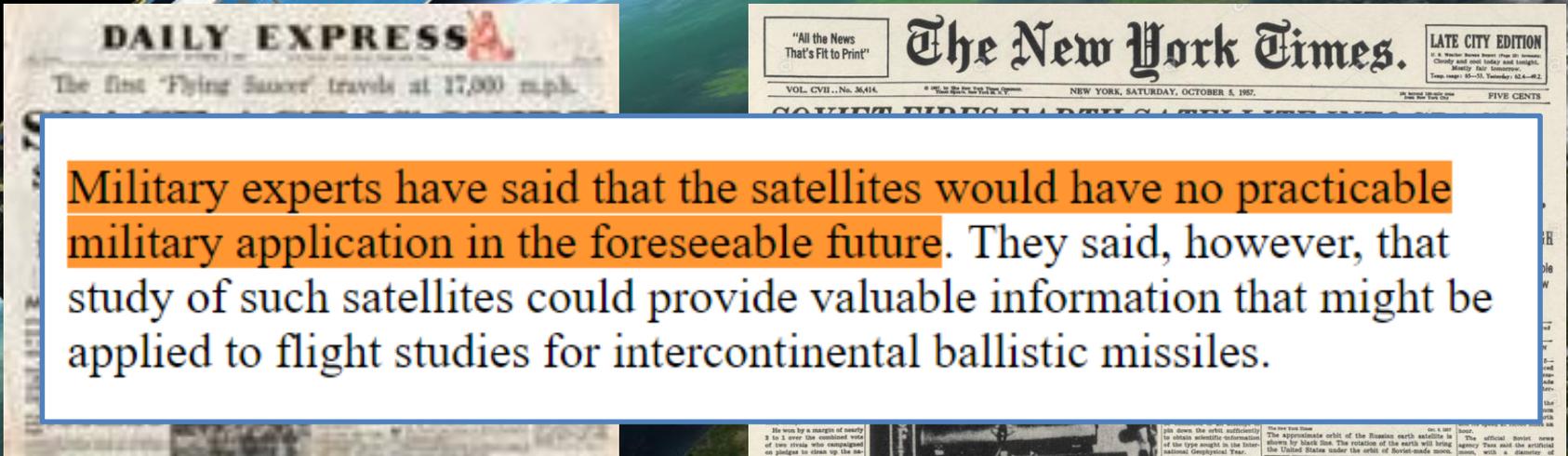
Stuxnet worm heralds new era of global cyberwar



Declassified report says to undermine faith in Trump



# (1) Predictions vs. reality: Space



**DAILY EXPRESS**  
The first 'Flying Saucer' travels at 17,000 mph.

**The New York Times.**  
LATE CITY EDITION  
It is a matter of time before the sky is swarmed by flying saucers. They will be noisy and fast and will be a major factor in the future.  
Times range: 65-75, Tuesday, 62.6-62.7.  
FIVE CENTS

VOL. CVII..No. 36,414. NEW YORK, SATURDAY, OCTOBER 5, 1957.

**GOVERNMENT REPORTS ON SPACE**

**Military experts have said that the satellites would have no practicable military application in the foreseeable future.** They said, however, that study of such satellites could provide valuable information that might be applied to flight studies for intercontinental ballistic missiles.

He won by a margin of nearly 3 to 1 over the combined vote of two rivals who campaigned on pledges to clean up the air.

The five men tried to plot down the orbit sufficiently to obtain scientific observations of the type sought in the International Geophysical Year.

The approximate orbit of the Russian earth satellite is shown by black lines. The rotation of the earth will bring the United States under the orbit of Soviet-made probes.

The official Soviet news agency said the satellite was launched with a clearance of



- Launched by Titan 3D,  
June 14, 1978

**"NATIONAL TECHNICAL MEANS OF VERIFICATION"**

Reconnaissance - Surveillance  
Over Sino - Soviet Missile Sites

USAF

**BIG BIRD-16**

Postmark: VAN DUSEN, CALIF. JUN 14 1978

USA 13



**THE FIRST SPACE WAR:  
THE CONTRIBUTION OF SATELLITES TO THE GULF WAR**

SIR PETER ANSON BT AND DENNIS CUMMINGS

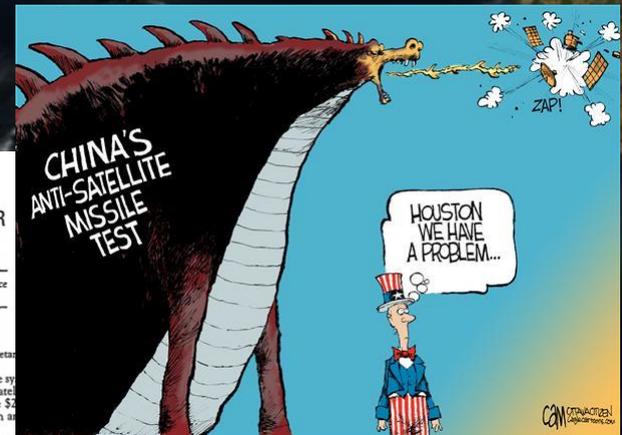
*The authors examine the contribution to the Coalition forces' success in the Gulf conflict of military and civil space systems, in communications, surveillance, earth observation, navigation and public news reporting roles.*

*We could see, hear and talk all through the war. After a few hours, he (Saddam Hussein) could not.*

Martin Faga, Assistant USAF Secretary

The Gulf was the first occasion on which a full range of military space systems was used in a conflict against another power. Around 60 Western military satellites were directly involved. It was the first real test under war conditions of the \$2 billion space machine, and the first justification in combat of the \$1 billion French and American investments in military space.

Space added a fourth dimension to the war, influencing the general direction of the conflict and saving lives. It enabled a fully secure and effective trunk and tactical communications network, large enough to support a 400,000 strong army, to be established in-theatre in a few weeks and provided detailed images of Iraqi forces and the damage inflicted by Allied air attacks. It gave early warning of Scud missile launches.

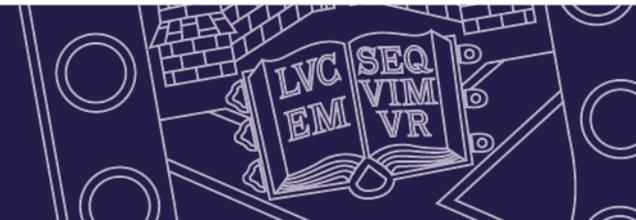


# (1) Predictions vs. reality: Outlook

Growing number of States are developing offensive **cyber** capabilities

Global reliance on “dual use” **space** technology developed in the military sector

Future armed **conflicts** will have a cyber and/or a space element



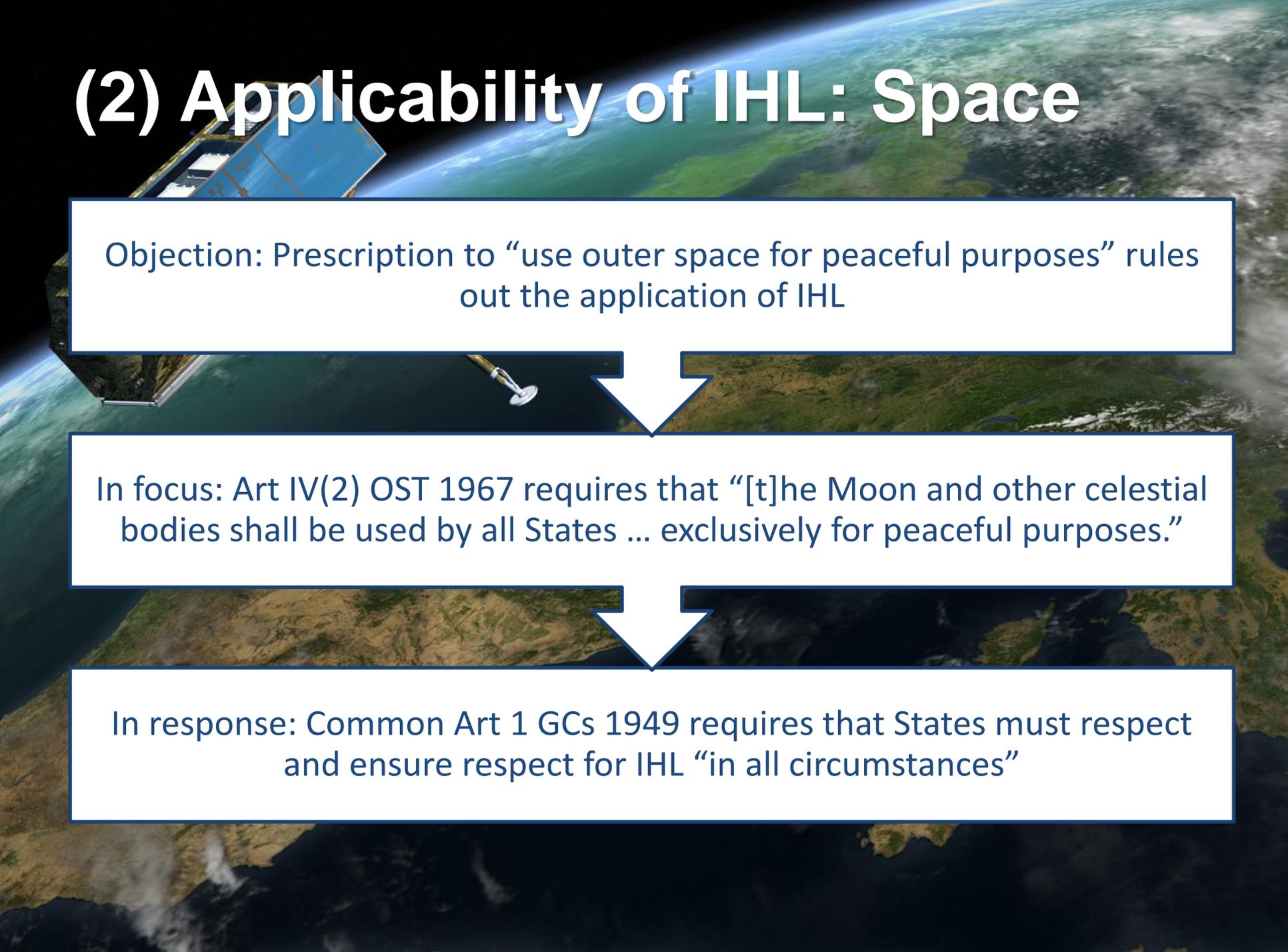
## (2) Applicability of IHL: Cyber

Objection: Analysis of cyber operations through the prism of IHL  
“aggravates cyberspace militarization and arms race”

In focus: Most cyber operations indeed do not occur in armed  
conflicts or suffice to trigger IHL

In response: General acceptance that international law applies in  
cyberspace (UN GGE process; Tallinn Manual 1.0 and 2.0; ICRC)

## (2) Applicability of IHL: Space

A satellite with solar panels is shown in orbit above the Earth. The background is a view of the planet from space, showing the curvature and the blue and green colors of the atmosphere and land.

Objection: Prescription to “use outer space for peaceful purposes” rules out the application of IHL

In focus: Art IV(2) OST 1967 requires that “[t]he Moon and other celestial bodies shall be used by all States ... exclusively for peaceful purposes.”

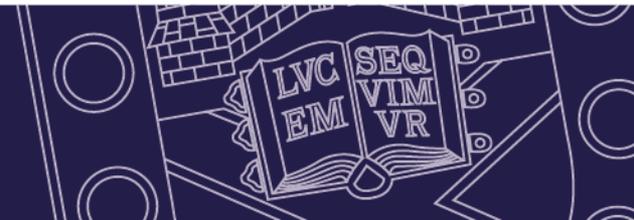
In response: Common Art 1 GCs 1949 requires that States must respect and ensure respect for IHL “in all circumstances”

## (2) Applicability of IHL: Implications

IHL is applicable in principle to conduct in (from, to, through...) cyberspace and outer space

This issue must be distinguished from legitimation or encouragement of specific conduct in these domains

The key question is how IHL applies in specific situations without parallels in “ordinary” terrestrial kinetic warfare



# (3) Challenges: Is data an object?

*Example: cyber attack by one State against the national registry office of another State during an IAC*

## NO

- Data not within 'ordinary meaning' of the term object
- Data not 'visible and tangible'
- Fallback solution: if cyber infrastructure is affected, cyber op qualifies as 'attack' and thus falls within IHL

## YES

- Evolutive interpretation brings data within 'ordinary meaning' of objects in 2017
- Visibility and tangibility meant to distinguish things from goals/aims
- Object and purpose of Art 52 AP I (protection of civilians in armed conflict) necessitates an extensive interpretation

# (3) Challenges: Military astronauts

*Example: orbital encounter of two manned space objects belonging to two enemy States during an IAC*

## Always a target

- IHL is “the” *lex specialis*
- Art 43 AP I (“Members of the armed forces of a Party to a conflict ... are **combatants**”)

## Always protected

- Space law is “the” *lex specialis*
- Art V OST 1967 (States “shall regard astronauts as **envoys of mankind**”)

## Sliding scale

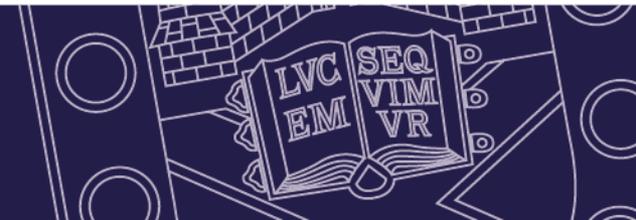
- Which rule is more specific depends on the facts
- Possible tipping point: test of material nexus to conflict or DPH *per analogiam*

# (3) Challenges: Lessons learned

Distinction between regulation  
and justification

Non-binding initiatives as norm-  
making laboratories

Importance of official  
expressions of *opinio juris*





**Thank you for your attention!**

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