Paper ID: 42554
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61st IISL COLLOQUIUM ON THE LAW OF OUTER SPACE (E7)
Legal framework for collaborative space activities - New ways of launching (micro-launching) and large constellation microsats (Joint IAF/IISL session) (7-B3.8)

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ADDRESSING ENVIRONMENTAL AND HEALTH CONCERNS OF TOXIC ROCKET FUEL: LEGAL AND POLICY IMPLICATIONS

Abstract

According to Byers and Byers, Russia has dropped rocket stages fuelled with unsymmetrical dimethylhydrazine (UDMH) into the Barents Sea and the North Water Polynya—areas of considerable ecological importance—on ten occasions since 2002. Not all of the fuel on-board is consumed during a launch and the residual fuel tends to escape the incoming stages and form aerosol clouds that drift over large areas, which could potentially cause damage to the Inuit of Canada and Greenland. At least two more launches of UDMH-fuelled rockets on the same trajectory are currently planned, including the ESA Sentinel 3B satellite.

Byers and Byers provide recommendations as to how to address the risks posed by those additional launches including that: 1)The European Space Agency should stop launching satellites into sun-synchronous orbit on UDMH-fuelled rockets from Plesetsk Cosmodrome, unless and until it can be proved that UDMH poses no risk of serious harm to the Arctic environment and its peoples; 2) Health surveys should be conducted of Norwegian fishermen frequenting the Barents Sea and of Inuit living near the North Water Polynya to determine whether elevated rates of UDMH-related diseases are present in these populations; 3)The air and water in the Barents Sea and the North Water Polynya should be sampled immediately after any future launch to determine if UDMH or any of its transformation products are present; 4) Scientific studies, including experiments, should be conducted into the behaviour of UDMH in the conditions prevalent in the Barents Sea and the North Water Polynya, including relatively low air and water temperatures, salinity and pH and that; 5) the European Space Agency, other space agencies, countries and companies should encourage Russia to accelerate the move to its new generation of Soyuz-2-1v and Angara rockets by contracting launches specifically on these modern non-toxic systems.

This paper addresses the viability and challenges of these recommendations from a law and policy perspective.