

# Graphene ballonets promise better performance than cow or sheep intestines for modern airships.

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## **Abstract** (Arial 10)

Airships have been built for hundreds of years [1]. Still assumed to be outperformed by airplanes. Airplanes fly higher, faster, but not cheaper, or less polluting or noisier and lesser dependent on infrastructure than airships may do [2]. Sea-vessels transport cargo over the sea in 15-18 knots from harbour to harbour; goods piling up in large container depots that is controlled by computer logistic systems. There may exist transport niches between airplanes and sea transport that is well suited for airships. But humankind does not have solid numbers that enables comparison of airships and airplanes or ships. Numbers for investors to use and compare and do cost-benefit analysis and come to a conclusion to risk their money over time and endure cutbacks [3].

Airships designers that have high yield weight numbers for materials like graphene and carbon fiber can produce these numbers making transport comparisons more realistic than Zeppelin had for its lifting system using intestines in their ballonets. But this demands much more knowledge of the material graphene than humankind has today. Inhomogeneity in quality making graphene brittle, production methods for large graphene areas, enabling structural calculations of shear force. If a payload of 1000-ton cargo is docked and lifted in just a half an hour. Aeronautic induced forces on airship structure will stress the material into exhaustion points and since knowledge of graphene in large structures is unknown this has to be a basic research area for at least 10 years ahead. Core balancing buoyancy system enables airships to transport 1000 plus its own weight, has to be able to reduce the ballonets volume of helium or hydrogen. Either solution to do this causes stress on the material graphene and its carbon-structure. Stresses we do not know if the promising material graphene holds firm. More research on large areas of graphene is therefore needed if humans are to use graphene as a core material in ballonets and support structures for airships.

## **References**

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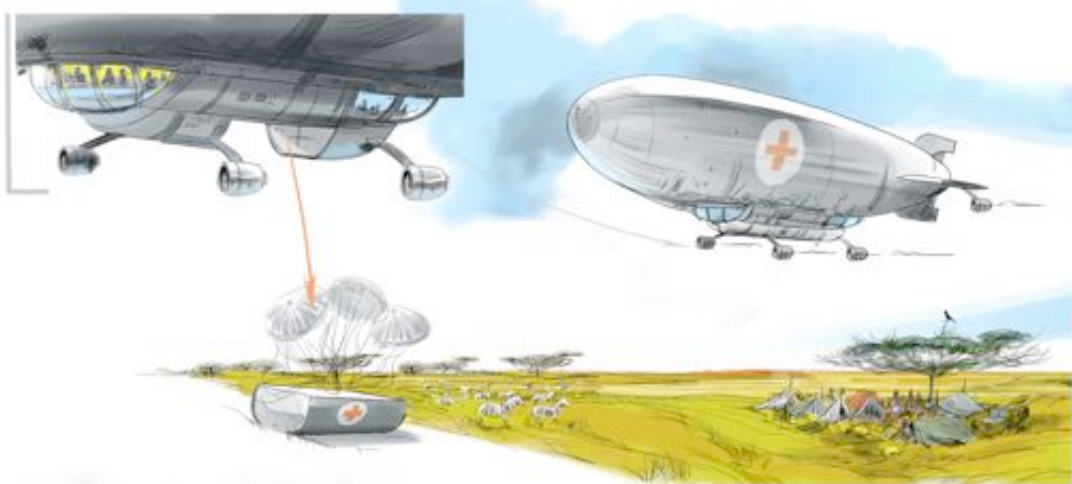


Figure 1, Scenario semi-structured Airship dropping tonnage of aid-goods to refugee camps.