



## **HELIOTORR™ Mission**

Managed by:

GLYCAN INDUSTRIES CORP. Ltd UK

GLYCAN SPACE XR - HELIOTORR LLC USA

GLYCAN INDUSTRIES LLC USA

GLYCAN SPACE XR Ltd UK

GLYCAN HOLDING AG (ex NEUTRAL METAL SA) Switzerland

## **Lenticular Airships (Helium) Earth**

### **Extraterrestrial options: other gases on Planets or moons**

Size of the airship: 60m-100m diameter, with a payload (15 to 75 tons) which is directly proportional to the airship's volume at ground level, less the general structure, including propulsion and equipments. One m<sup>3</sup> of Helium can lift one kg. Therefore, an airship of 100,000 m<sup>3</sup> of Helium could transport 100 tons. However, taking into account the 25 tons of the airship's own weight, the actual payload would be 75 tons.

**HELIOTORR** will provide the following services to industries:

### **1. Transportation:**

- Heavy structures (dismantling of factories, parts of bridges, oil rigs, chimneys, etc.) and equipments (engines, turbines, generators, filters, etc.)
- Trucks, door to door
- Large quantities of drinkable water
- Hazardous wastes and chemicals that cannot be transported safely by road, rail or sea

## 2. Surveillance and monitoring:

- National hydrology map
- Hydroelectric plants
- Geophysical assessments
- Forest and brush fire surveillance and, subsequent, firefight, with Hybrid HELIOTORR (Helium and air).
- Telecommunications
- Rescue missions over land and sea

## Capabilities of the lenticular HELIOTORR

The **lenticular shape** of **HELIOTORR** has been demonstrated to be the best shape (aerodynamics studies of an 8 meters diameter model) in speed wind tunnel testing (ONERA France) to move in air, including in atmospheric perturbation zones with wind of 120 km/h, without any structural damage, even in the case of oscillator mode.

The payload capability is assumed by Helium gas (He), which is a non-inflammable mono-atomic gas, weight of 4 compared to the average atmospheric molecular weight of 78.084% N<sub>2</sub> – 20.947% O<sub>2</sub> (28.84)

One m<sup>3</sup> of Helium can lift approximately one kg under standard conditions (temperature and room pressure: 15°C/288.15°K / 1013 mb). A mole of gas occupies a volume of 22.4 liters at 1-atm pressure and 273.15°K. Helium density is d He: 0.0001785 g/cm<sup>3</sup>.

Helium is considered a “noble gas” since it is difficult to associate the Helium atom (1s<sup>2</sup>) to another atomic element.

**This means that it is completely inert and therefore non-flammable.**

On Earth the air composition is as follows:

Standard conditions 1013 mb and 288.15 °K (15°C) sea ground level

Name	Symbol	Percent by Volume
Nitrogen	N2	78.084 %
Oxygen	O2	20.9476 %
Argon	Ar	0.934 %
Carbon dioxide	CO2	0.0314 %
Neon	Ne	0.001818 %
Methane	CH4	0.0002 %
Helium	He	0.000524 %
Krypton	Kr	0.000114 %
Hydrogen	H2	0.00005 %
Xenon	Xe	0.0000087 %

The airship's movements and capabilities respond to the general laws of physics, dynamics and thermo-dynamics, whereby air is considered as a deformable fluid and the airship as a solid subjected to the earth's gravity within the context of the medium. Thus, the general equations of hydro-dynamics can be applied to the airship's mathematical model (specialized matrices). Consequently, the capabilities of the airship depend on the medium's quality and its perturbation by the solid dynamic state of the airship. The distribution of the field forces varies with regard to the partial anisotropy state (when in movement) and to the partial isotropy state (when the airship is grounded, without oscillator mode). **Within a context of environmental stress, the lenticular shape of the airship attains greatest stability in comparison to other shapes tested.**

**HELIOTORR** will be constructed with advanced composite materials, including, some parts of the engine, in Boron Nitride (BN3), and specialized polymers, because the only defect of Helium is its relative diffusion in materials (such as the Helium holding tank) and, because of temperature differences inside and outside of the **HELIOTORR**, the

diffusion could be accelerated if classic membranes are used. Therefore, the Helium pressure needs to remain constant or diminished by a calculated percentage. The required pressure can be attained with additional liquid Helium stocked in the **HELIOTORR** or at the airship's reception base.

The propulsion of the **HELIOTORR** is obtained by hybrid mode: electric supply power (silicon cells) and fuel cells. One small top region of the **HELIOTORR** will be equipped with silicon cells providing electric current for general flight control, monitoring and radio transmissions. The fuel cells will provide energy for electric propulsion and emergency situations. The propulsion engine will be low velocity turbines, with 3D freedom, to move the **HELIOTORR** correctly. The propulsion will be coupled with a predictor program monitored by the on-board pilots. Within a predictive context, the flight can be automatically undertaken, with the exception of arrival and start-up operations.

**HELIOTORR** airships will be constructed within a customized context, responding to a given client's specific needs, including: required payload; volume; lenticular criteria; mass structure; coupling equipment (payload and airship); propulsion, hybrid or He only; equipments; monitoring; protection; autonomy; velocity; pilots and mechanics, and insurances.

#### **General observations:**

The **HELIOTORR** airship can fly at several altitudes (300 m to 2,000 m) and transport easily 15 to 75 tons, at an average velocity of 120 km/h. The volume of the airship can be between 30,000 m<sup>3</sup> and 100,000 m<sup>3</sup>. With appropriate power supply (direct silicon quantum converter and fuel cells), the airship has several days of autonomy.



**MODEL MQ1 PEGASE-8 meters diameter ONERA 1975 WIND TUNNEL TEST successful (Christian Daniel Assoun on the left side)**



**NEVER AGAIN**

**PROPOSAL FOR THE HELIOTORR Mission**

**FIRE PREVENTION AND FIGHT  
CALIFORNIA-FRANCE-PORTUGAL-CANADA**

**APPLICATION IN CALIFORNIA: REDUCED HELIOTORR ENGINE 30m in diameter.**

**Note:**

This project is aimed at decision-makers and Governmental players involved in managing the causes and consequences of forest fires and pine forest fires disasters, triggered in a criminal, accidental or natural way in California.

## **PROBLEMS : DIRECT, INDIRECT AND COLLATERAL DAMAGES**

**AT LEAST 7 BN \$ each year (in the USA) are spent (lost) in various repairs, payment of subcontractors or replacement of interventional materials and additional investments to fight and prevent on site. Ecological consequences are difficult to evaluate while the moral and psychological damage on victims is not quantified in this brief presentation.**

Recurrent fires, regardless of their origins, are deeply prejudicial to the ECO-BIO-SYSTEMS and to societal and economic development.

The authorities mobilizing professionals or volunteers competent in the field of civil security can not apply preventive methods because the losses are detected or prevented too late, despite the will of both, the suffering of property and persons is not acceptable and is deeply unfair.

The financial efforts of the insurance companies are subjected to a severe ordeal which we consider unfair and vexatious, as well as aid from the States, which is subject to eventual punishment that could be avoided.

### **SOLUTIONS:**

#### **PREVENTIVE MEASURES and MISSIONS**

**Glycan Space XR-HELIOTORR LLC** and **Glycan Industries Corp. Ltd** offer to the actors in these disasters an ATMOSPHERIC HELIOSTATIC ENGINE (Neutral gas-filled with HELIUM) of lenticular shape and 30 meters in diameter and able to be positioned GEOSTATIONNARY at 21 km d but also able to carry out surveillance and prevention or intervention missions at 1 km altitude in sensitive areas in California.

**HELIOTORR** could participate in other missions including hydrological, meteorological and rescue monitoring in areas that may be flooded or inaccessible to helicopters, natural disasters, transport of sensitive equipment, radio communications, surveillance of the territory, wild deforestation, among others...

Depending on the needs, **HELIOTORR** would be equipped with an electric propulsion (external motors) via fuel cells and solar rescue, embedded equipment High technology of detection of the radiation in the visible and invisible domains, spectrometry and of high resolution cameras, means of transmission of the data, this equipment has



already existed for a long time on combat aircraft and helicopters but also classically in the large space agencies on military satellites.

Various Organizations could be interested worldwide.

High resolution cameras in the event of incident detection could also extend their scanning to 300 or 500 meters around the target point and photograph possible vehicles involved in criminal acts.

On-board equipment could reach 300 kg and the piloting could be robotized as well as the installation of the sequences of intervention device by device and analysis of the alert and countermeasures.

Following the execution of the ANALYSIS specification, depending on the distance between **HELIOTORR** and the geodesy of the target and the qualification of the alert the coordinates of the incident would be sent to the competent authorities. Either for immediate intervention or be entrusted for various reasons to **HELIOTORR**- (control and command station)

HELIOTORR could detect a spectral image (a fire start of 30 cm in diameter or a smoke of particles rising between 10m and 50 meters) by embedded absorption spectrometry or laser diffractometry

**HELIOTORR** could also house a programmed retro-parachute **drone** in the cargo bay that could dump beacons in the center of the aggressive zone and issue the exact geodesy to be targeted to the authorities.

This methodology could be applied in general by civil protection in the context of refineries or reserves of drinkable water, active or inactive nuclear power stations, and finally any infrastructure deserving intelligent surveillance (intercommunication).

**HELIOTORR** should be a powerful preventive tool adaptable to various missions, including the transport of indivisible masses (nuclear or petrochemical plants to be dismantled and therefore indivisible payload) - the dimensions of **HELIOTORR** should be revised upwards either (from 30 m to 100 m).

In case of necessary security measures, **HELIOTORR** aircraft navigating at low altitude could embark counter measures equipment with a possible use of thermal decoy signatures, in order to avoid possible attempts by terrorists to send terror-to-air rockets.

SOL-AIR missiles cannot reach the GEO STATIONARY **HELIOTORR** at 21 km altitude.

**HELIOTORR** could not be destroyed by conventional weapons of war because **it is not** filled with flammable gas, but **HELIUM is INERTE**, and **HELIOTORR** could be composed of honeycomb cells in KEVLAR and some damaged cells could not the technical viability of **HELIOTORR**.

A permanent beacon in agreement with the civil or military authorities would be installed on **HELIOTORR**.

The return to the ground of **HELIOTORR** for reasons of maintenance or incident would not pose any danger for inhabited or industrial areas.

The management of INDUSTRIAL POLLUTIONS should be part of **HELIOTORR**'s specifications.

The CUSTOMS services should be interested in **HELIOTORR** as well as the port authorities, and therefore for the defense of the territory.

## **FREQUENT QUESTIONS (FAQ) AND LOGICAL RESPONSES**

**QUESTION:** How is it that it doesn't yet exist in the tools of the authorities?

**ANSWER:**

The novelty (even old! ) is scary and nobody wants to take responsibility, it is the good old method of the umbrella. About novelty all the technologies embedded on **HELIOTORR** have existed since the Cold War between the USA and RUSSIA! It is not a matter of putting in place complex and time-consuming research and development to deal with these problems of fire prevention, nor of qualifying a new particle in nuclear physics, but simply of bringing together skills and federate the real wills in the United States and California.

**QUESTION:** How much does a **HELIOTORR** cost?

**ANSWER:**

It is comparable to a military truck, parts and labor and especially embedded options, we estimate that a budget of US \$ 3 Million should be suitable, excluding purchase of a construction zone. **HELIOTORR** would be in the envelope total budget for approximately US \$ 7 Million. Financial losses of \$ 7 BN cannot be considered as turnover ! The sum of US \$ 7 million compared to the loss of 7000 million US \$ (7 BN \$) is ridiculous 1/1000 and raises questions!

**QUESTION:** Why didn't you propose it before?

**ANSWER:**

There are experts in this field who will be urging us as promoters of the **HELIOTORR** project to move forward as soon as possible in the construction of these



engines in France (the merit of the prioritization in the Aerostats belonging to the French (Montgolfier brothers!)) in order to be ready for summer 2018, if possible.

Our field of expertise is mainly focused on Space Research (Extraterrestrial Mining, including Moon - MARS - Asteroids) and also on the cleaning of the satellite space encumbered by inactive (commercial or military) satellites in NEO - LEO - GEO Earth orbit, and which represent a significant hazard, patents Plasma tools -2006-PCT-2016 filed in the USPTO and entered the PCT phase (International).

*Note: a Joint Venture between Glycan Industries LLC and Goodyear at Tucson could be an interesting way.*

## **ANTERIORITY IN COMPETENCE**

Christian Daniel Assoun AT3. In charge of the manufacturing of the PEGASE 1975- 2 meter diameter model CNRS-INAG Verrières Le Buisson 91 (France)  
The model of 8 meters of diameter (MQ1) was tested favorably in ONERA Meudon wind tunnel for its form of lenticular shape (France).  
Project Director Pierre Balaskovic 1973 CNRS - INAG Verrières Le Buisson (91 France)

## **Author of the project proposal HELIOTORR 16.09.2017**

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NOTE:

SpinOff(s) of HELIOTORR:

PLANET BENEFIT (Earth)

Reconstruction of the Ozone Layer (O3) (Earth)

Transportation and Settlement on Moon and -Mars, others

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