



**IUMI CONFERENCE - PARIS
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CARGO COMMITTEE PRESENTATIONS

**"TRANSPORT AND LAUNCH OF SATELLITES :
THE ARIANE EXPERIENCE"**

Presentation by Mr Régis DEMOULIN

Monsieur le Président

Members of the Executive Committee

Delegates and Accredited Members

Ladies and Gentlemen

At I.U.M.I., the well established tradition is that the host country has the honour and pleasure of being able to present a product which fully illustrates, symbolises even, its Economy or its art of living.

For technical reasons, it is customary for this talk to be included in the "Cargo" presentation since truly it is difficult to talk about the transport of chocolate... and here, what country do you think of ? ... during a "Hull" session and even less in an "Offshore" workshop.

I have therefore been given the responsibility of giving in to the tradition and speaking to you about the transport problems of a product which symbolises France.

Wine, cheese, perfumes, haute couture inevitably spring to mind ; we have deliberately chosen a product which represents a French, but also a European success ; since the Economy and Finance of our country can only be viewed through the European reality. The satellite launching industry in this respect is an example of the European success through the Ariane rocket and Arianespace is known to us all and throughout the world.

All transport insurers have actively participated in this success and my task is going to be to explain to you how they continue to accompany this industrial venture in exemplary fashion.

(SLIDE) : Presentation lay-out

I. A few words on the Ariane programme and Arianespace

(*SLIDE*)

- date of creation : 1980
- partners : 13 countries (France being the leader with an industrial share of 40 to 50 % followed by Germany and Italy)
- number of launches : 99
- 92 success / 7 failures
- frequency : 1 launch every 3 or 4 weeks

II. The logistics of the Ariane Transport

- map of France / Europe
and Kourou in perspective

It must be understood that the transport and assembly of the Ariane rocket and then the mounting of one or more satellites seems like a huge puzzle which must be solved in a strict time limit which is fact, shorter since, as I recall, the frequency of launches is now only every 3 to 4 weeks.

This puzzle also has the rather original distinction for such a high technology and sophisticated operation of using absolutely all the means of transport possible :

- inland waterways
- road
- sea
- plane

Brief description

(*PHOTOGRAPHY*)

The 1st and 2nd stages are built by Aerospatiale 40 Km from Paris and loaded onto a barge which travels down the Seine to the port of Le Havre.

An other sub-assembly built in Germany leaves from the port of Bremenhaven.

The fairing manufactured by Oerlikon in Switzerland is carried by road and also travels by barge on the Rhine down to Rotterdam.

The avionics platform, that is the "brains" of the launcher which is manufactured by Matra-Marconi leaves Toulouse to join up by road with the barge on the River Seine.

The two propulsion units made by SEP at Vernon are integrated into the stages and are also carried by barge.

The whole operation is supplemented by trailers, containers holding all the auxiliary equipment and the propellant (highly explosive).

The carrying vessel used from Northern Europe is the "Toucan" whose frequency is supplemented by the "Ariane", an other vessel specially designed for the transport of Ariane.

In fact, as the voyage to Kourou in Guyana takes 4 weeks whilst the frequency of launches is every 3 to 4 weeks, it is necessary to use two vessels.

At Kourou an artificial harbour has been specially built.

It is situated only 15 km from the launch pad and replaces the former port which was 60 km away.

In order to understand the technical quality constraints of this logistical operation, it should be remembered that transport operation of a launcher involves 1000 intermediate shipping operations which, if they are not carried out within their deadlines and impeccably, can hinder the departure of the barge and of the vessel and lead to a delay in the frequency of launches with the financial consequences which you can imagine.

Also to be remembered is that the size of the packages themselves is quite out of the ordinary : the Ariane launcher is more than 50 metres high and weighs 700 tons.

III. The special services contributed by Transport Insurers over and beyond their insurance duties

The success of these transport operations is due to the care shown by Arianespace's logistic services and by all the suppliers but also to the special services contributed by Transport Insurers.

- Assistance in the design of packaging from the onset of the project
- Analysis of the various voyage plans and recommendations.

In particular, ship surveyors are to issue certificates for the vessels and barges, approve the stowage plans and advise on the transport of dangerous goods.

- Analysis of the means of loading and unloading.

It should be noted that this prevention work must in essence be continued as and when the logistics change to suit the development of the rocket itself.

Example :

- building the new harbour in Kourou
- adapting the techniques of transport to the "Ariane V" development, the latest model of the rocket.

This prevention work has been carried out by technical advisors of the Insurers in a spirit of partnership with :

- Arianespace and its major suppliers
- The Shipowners of barges and sea-going vessels

Under these optimum preparatory conditions, the full survey operations are only occasional, since for the last 17 years which means that with a zero accident rate, the transport operations and their insurance have become quasi-routine operations in quality and deadlines.

IV. The originality of the insurance package

This industrial operation is also exemplary as regards packaging insurance policies and in fact foreshadows a development which we have all seen these last few years.

The globalisation of the survey and of the cover of risks and the complementarity of the "large risks".

In these circumstances, the Transport insurance policy includes the "Assembly" phase of the rocket and the duration of the cover ends within only a few seconds of the coming into effect of the policy issued by the Space insurers' policy.

The Ariane rocket certainly is symbolic as regards the association both functional and technical which we frequently find in our Companies between the Marine and Space-Aviation classes.

This exceptional insurance operation also illustrates the international character of our markets and the closer and closer cooperation or mixing between the insurance and reinsurance capacities.

In fact, these risks only find cover on a world-wide level. The aggregate total of insured values at a given point : the point of launching, amounts to some 200 million US dollars to which must be added the value of the satellites which can amount 250 or 500 million US dollars when there are two of them !

This means also that the Major Insurance Groups present on the slips of all these insurance and reinsurance programmes **must be fully aware of the accumulation of their commitments when the launcher/satellite final assembly is on the launch pad.**

Conclusion

As you have noted, the manufacture, assembly and launch of one single Ariane rocket is an operation as sophisticated and delicate as the mellowing of a bottle of "Mouton Rotsschild" or the creation of a Chanel perfume.

At European level it is a genuine industrial success which has led to the capture of a 50 % share of the market at world level.

At the level of Marine Insurers it is an example of an exemplary technical cooperation with brokers and client within a comprehensive insurance programme which really comes to completion for the final client (the owner of the satellite) at the moment of the final acceptance of the satellite well after it goes into orbit.

By reference to the central theme of our Conference : Marine Insurance : the Way Forward, I could also say that for Marine Insurers globalisation and internationalisation of the risk do not mean dilution and loss in specificity provided that professionalism and customer service equate with value added to an industrial programme.

Last but not least, it is a profitable insurance operation since as far as we know not one claim has been suffered since the start... during the transport phase.

In spite of our complementarity it is with pleasure that I now leave Space Insurers to their responsibilities... for the next leg of the journey.

But the final word is with the Arianespace Company whom I shall allow to introduce itself.