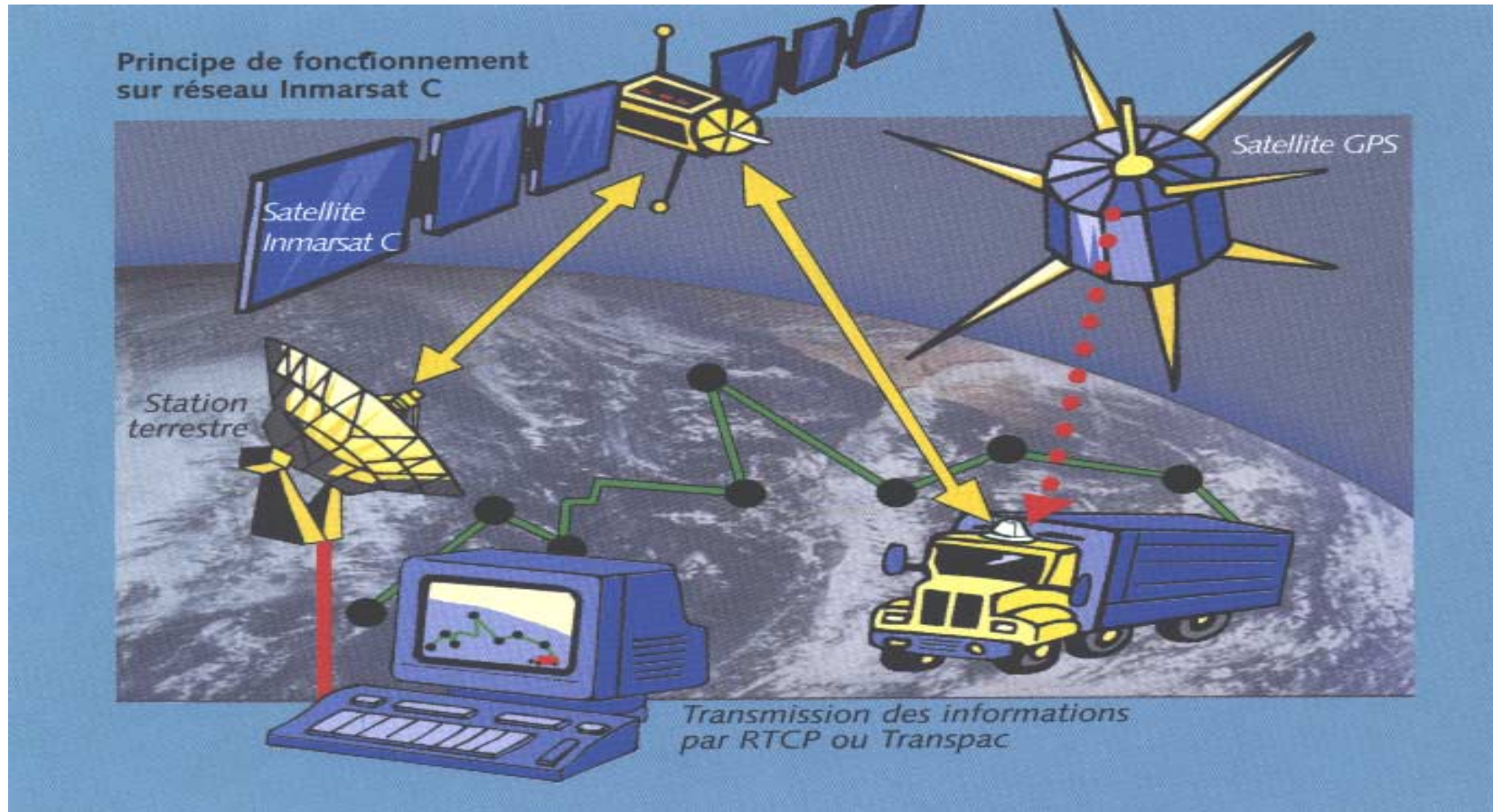


THE REAL TIME TRACKING SYSTEM



PRINCIPLE OF REAL TIME TRACKING WITH INMARSAT C NETWORK



Informations transmitted in real time

> **From vehicles to the tracking room**

- GPS Position
- Hour of the position
- Direction (Cap)
- Speed
- Alarms :
 - vehicle stopped
 - exceeding the limited speed
 - driver in difficulties
 - battery default
 - canopy open
 - ...

Informations transmitted in real time

> **From the tracking room to the vehicles**

- Sending a ponctual request position
- Modification of the frequency of transmitting
- Request of transmission of all positions and alarms recorded on the module on board every 45 s

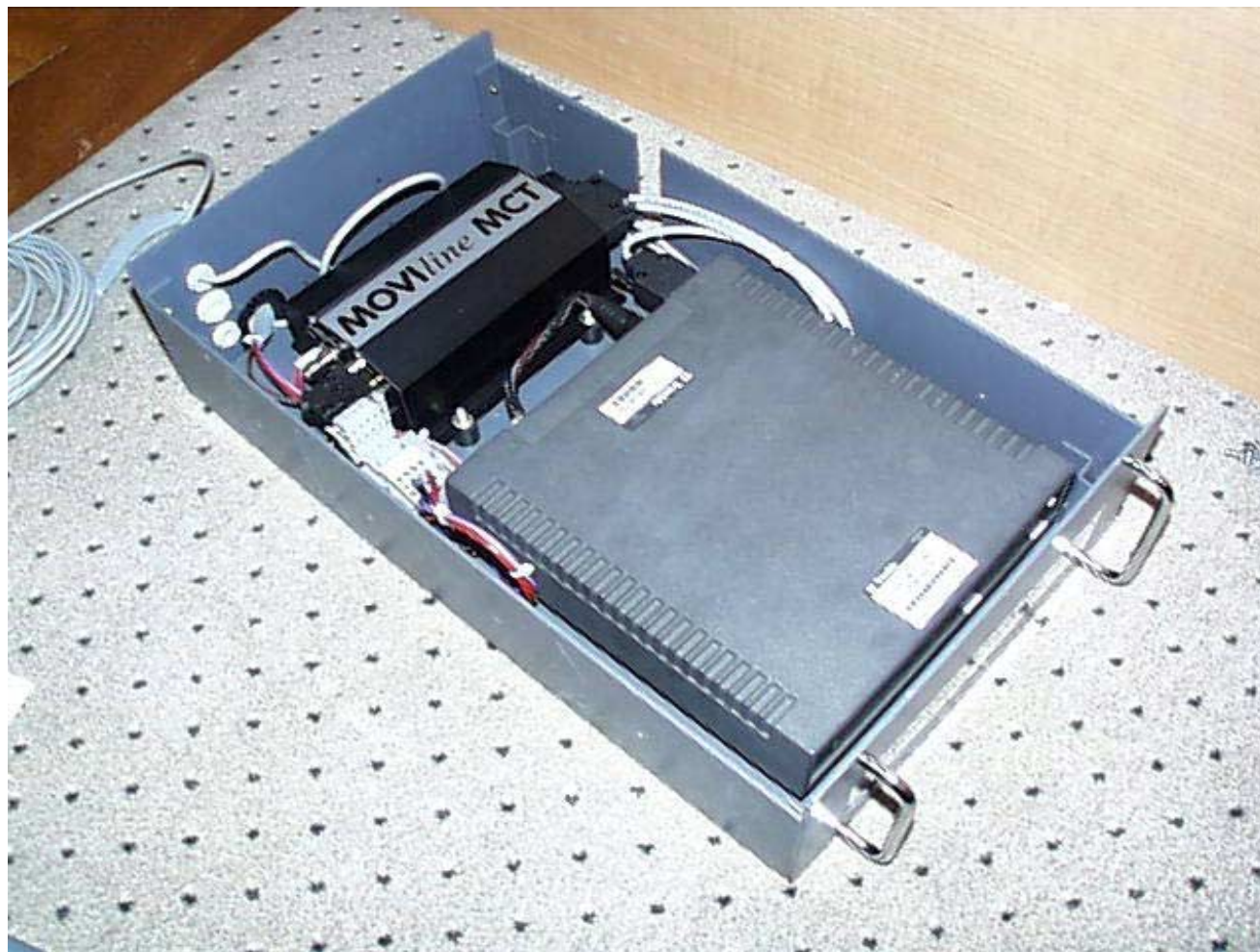
Tracking fittings on vehicles

> The module on board the vehicles including :

- An Inmarsat C transmitter / receiver
 - or a GSM transmitter / receiver
(same as cellular phone mobile)
 - a GPS card included in the Inmarsat C transmitter / receiver
 - a PC card
- } Communication function
- } Localisation function
- } Management of the on board software
Analog inputs and Digital I/O ports
Local Data acquisition (positions, alarms)

Tracking fittings on vehicles

Road on board system



Tracking fittings on vehicles

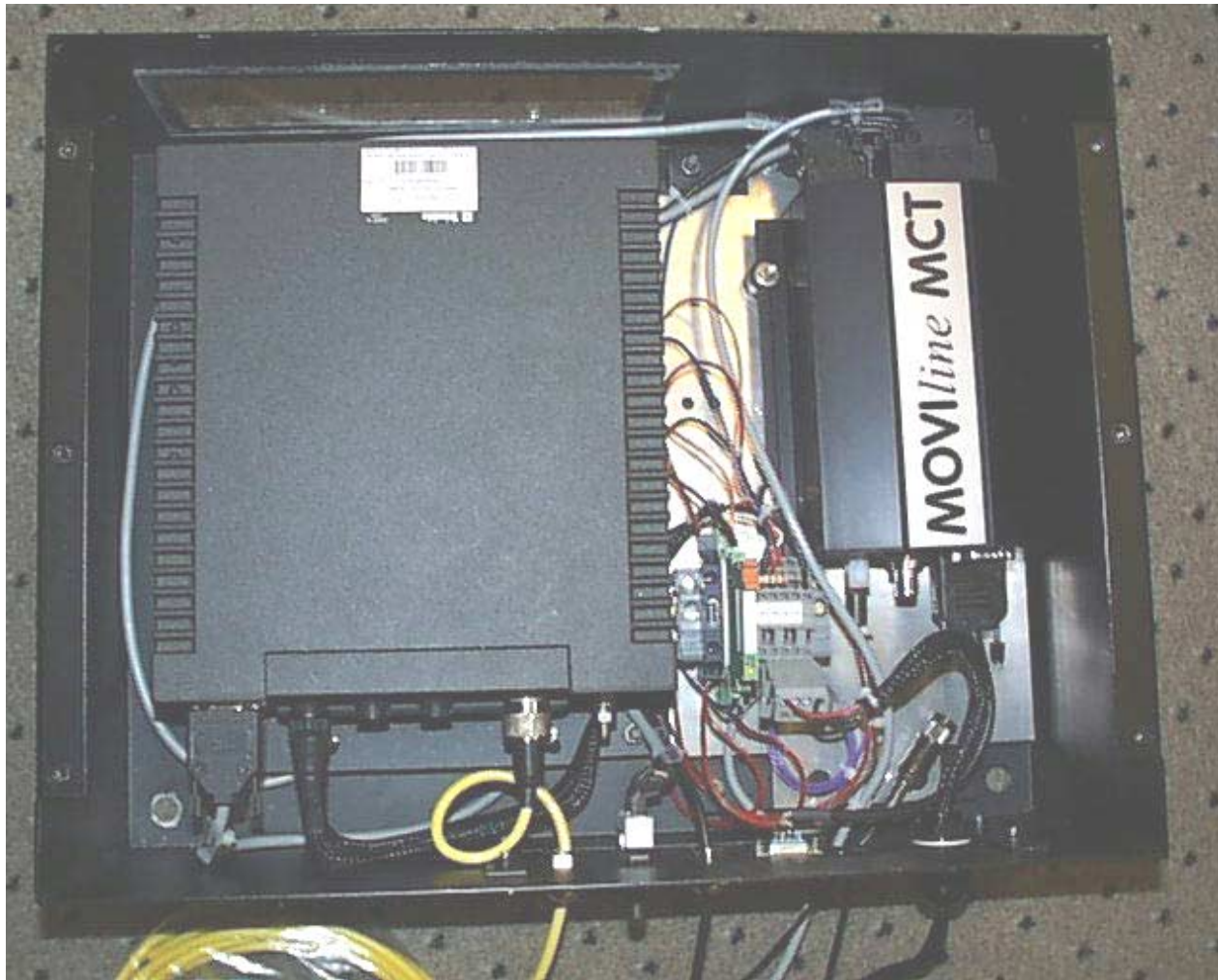


Tracking fittings on vehicles



Tracking fittings on vehicles

Rail on board system



Tracking fittings on vehicles

Inmarsat C transmitter / receiver



Tracking fittings on vehicles

Specific tracking fittings for Q7 wagons



Tracking fittings on vehicles

> **Designed to be**

- Not easily noticeable
- Free from operational constraints

> **The electrical supply system**

- 4 solar panels
- 4 wind propellers
- 4 batteries

The energy produced by the solar panels and by the wind propellers is stored in the batteries to be later released to the module on board.

Tracking fittings on vehicles

Fitting on the wagon cover (canopy)



The picture shows :

- > *The solar panels*
- > *The Inmarsat C antenna*
- > *The GPS antenna*
- > *Wind propellers*

Tracking fittings on vehicles

Fitting on the wagon cover (canopy)



The picture shows :

- > Wind propeller seen from inside the canopy***

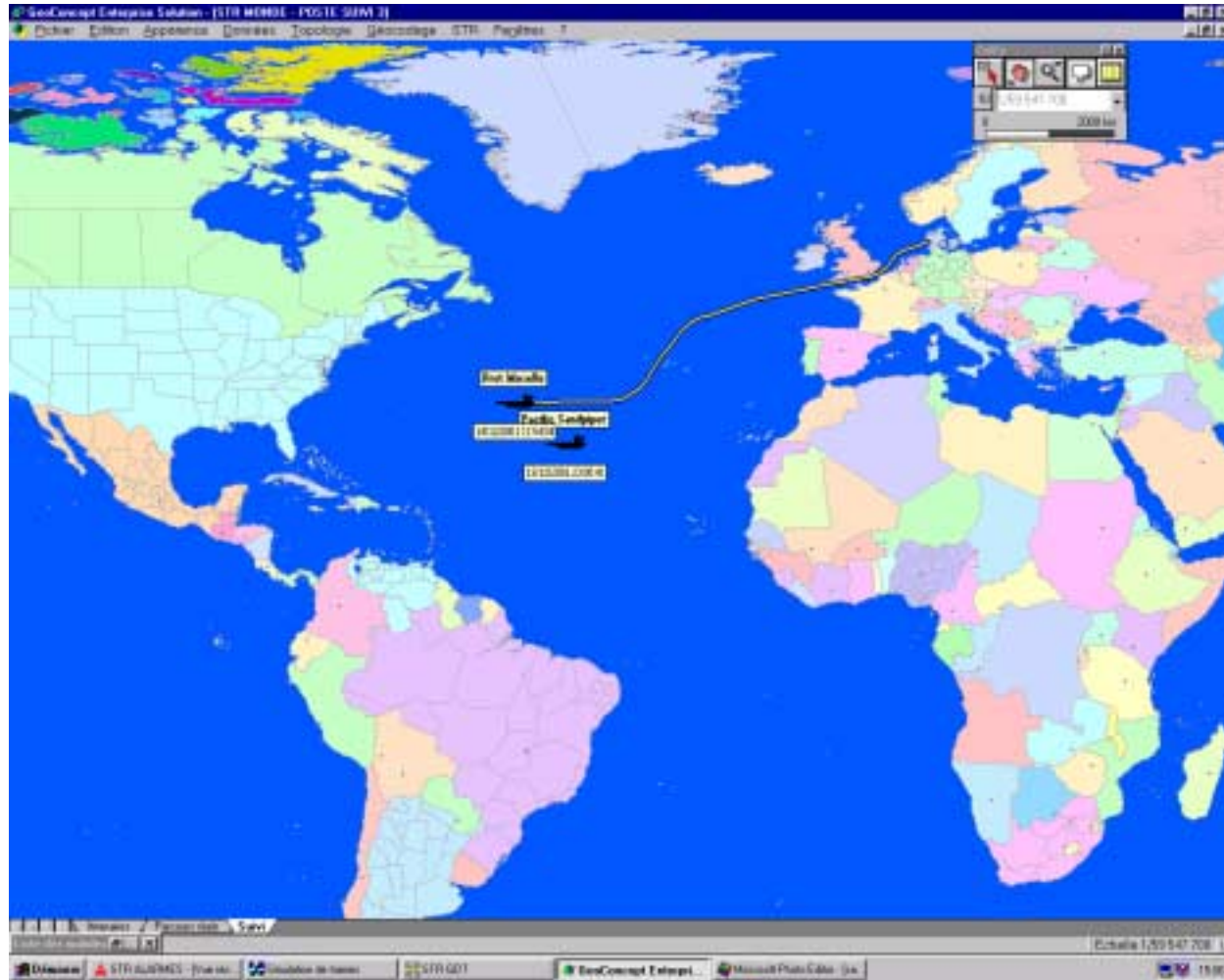
Tracking fittings on vehicles

Ship tracking



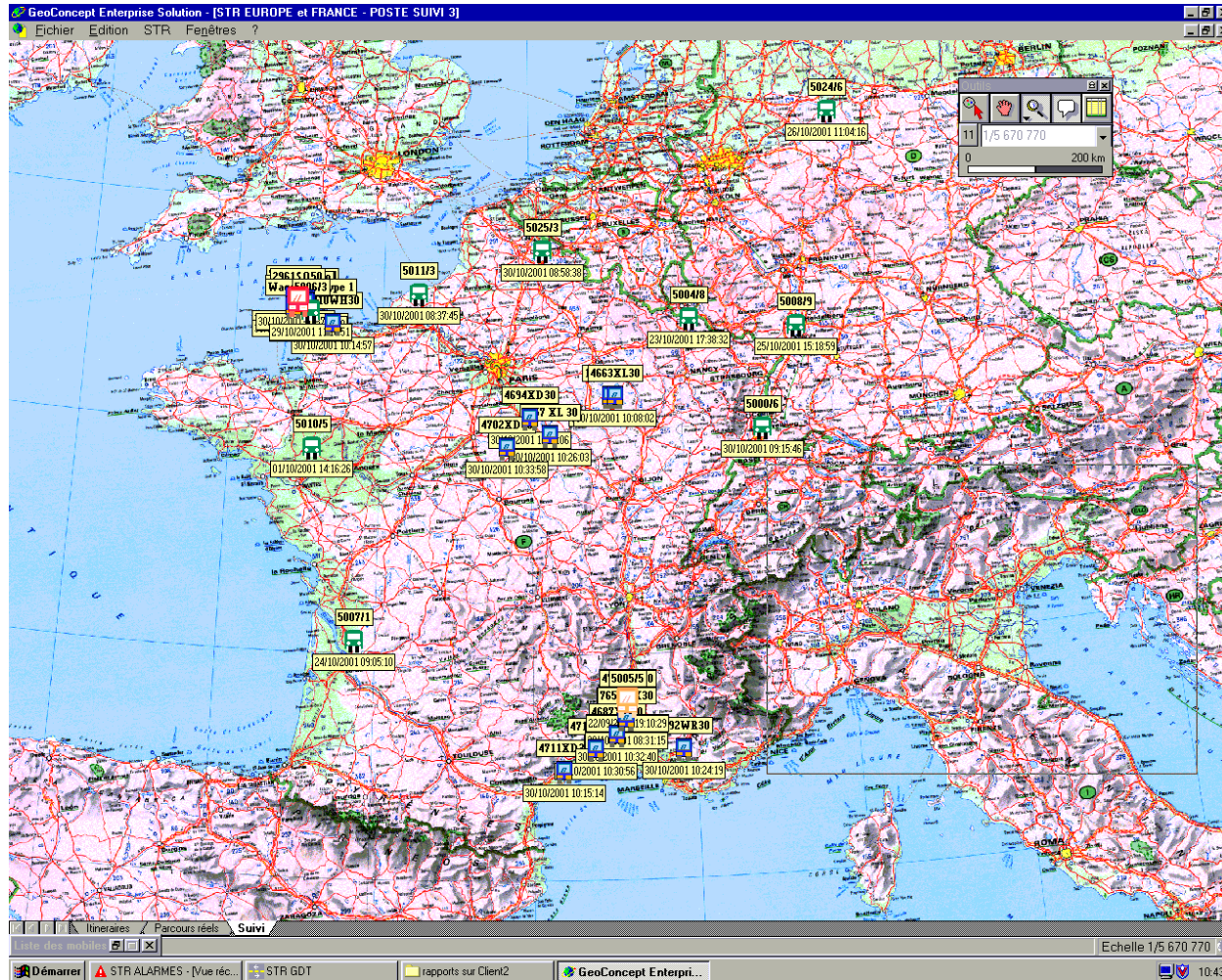
Tracking software

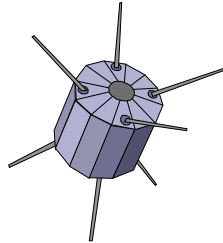
Ship tracking



Tracking software

Map





End...

