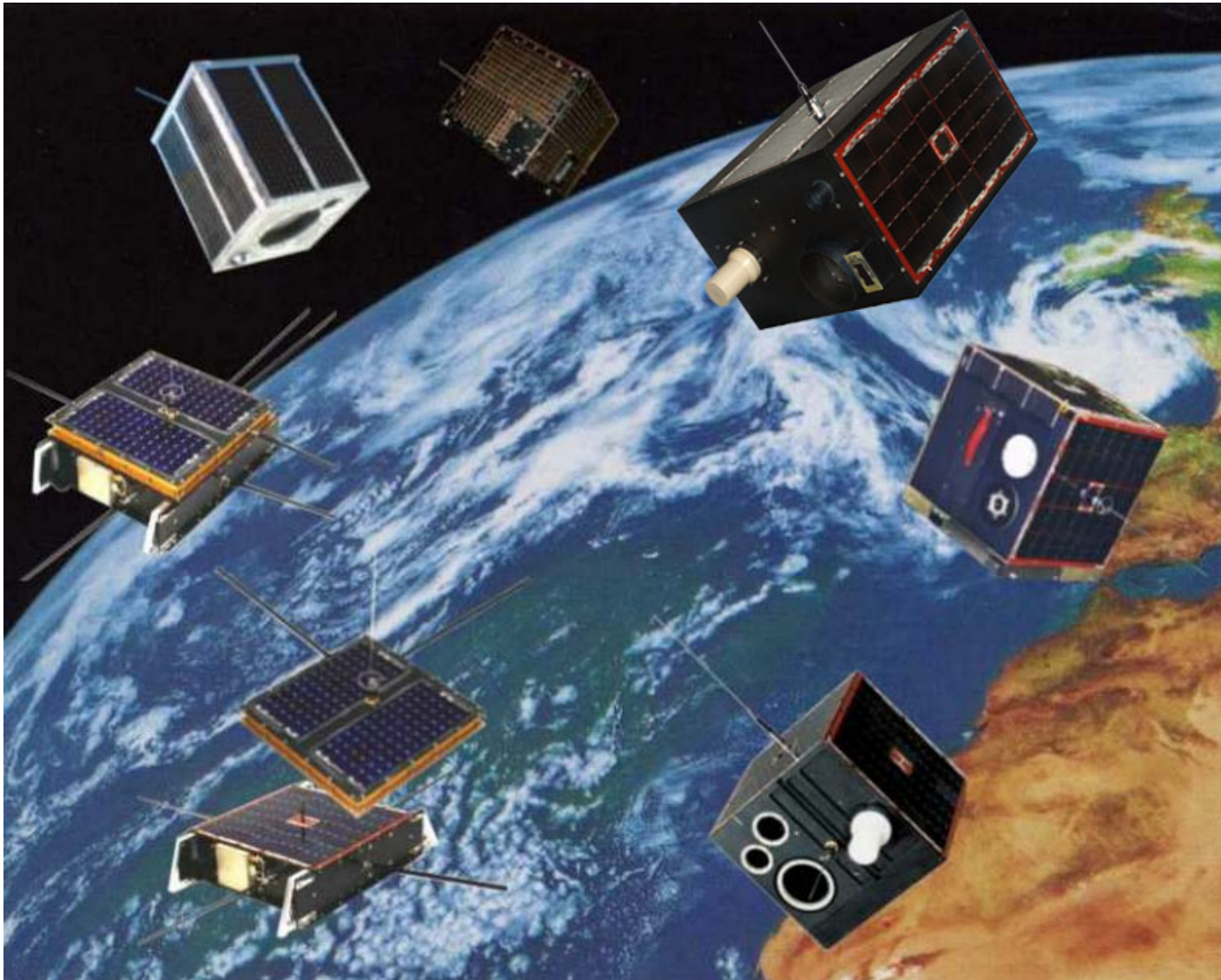




# U. Renner : The TUBSAT-Project

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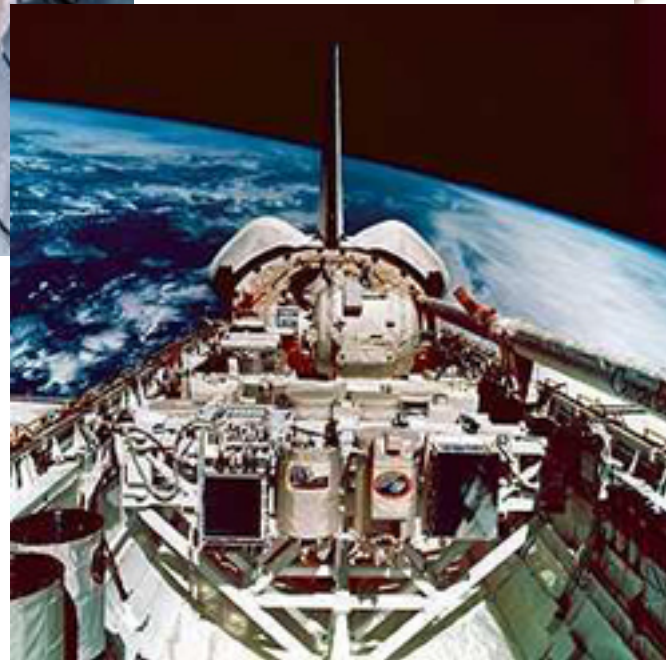
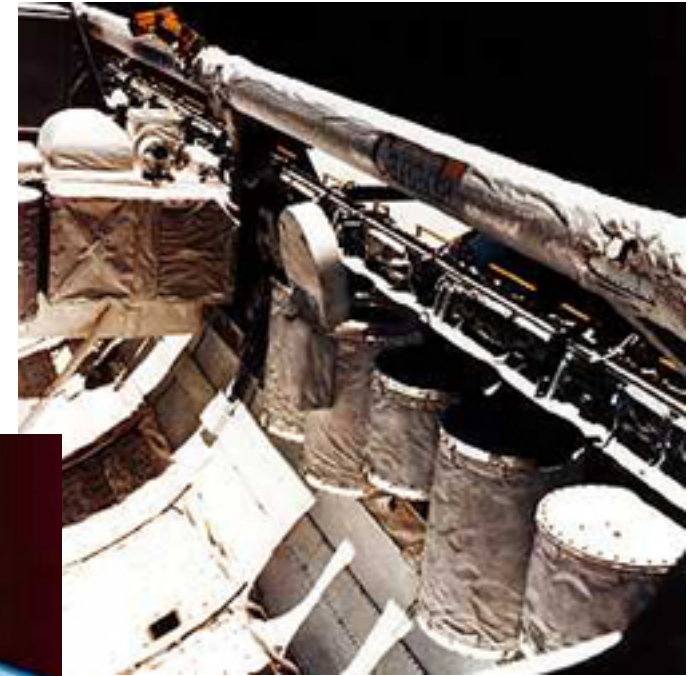




1985



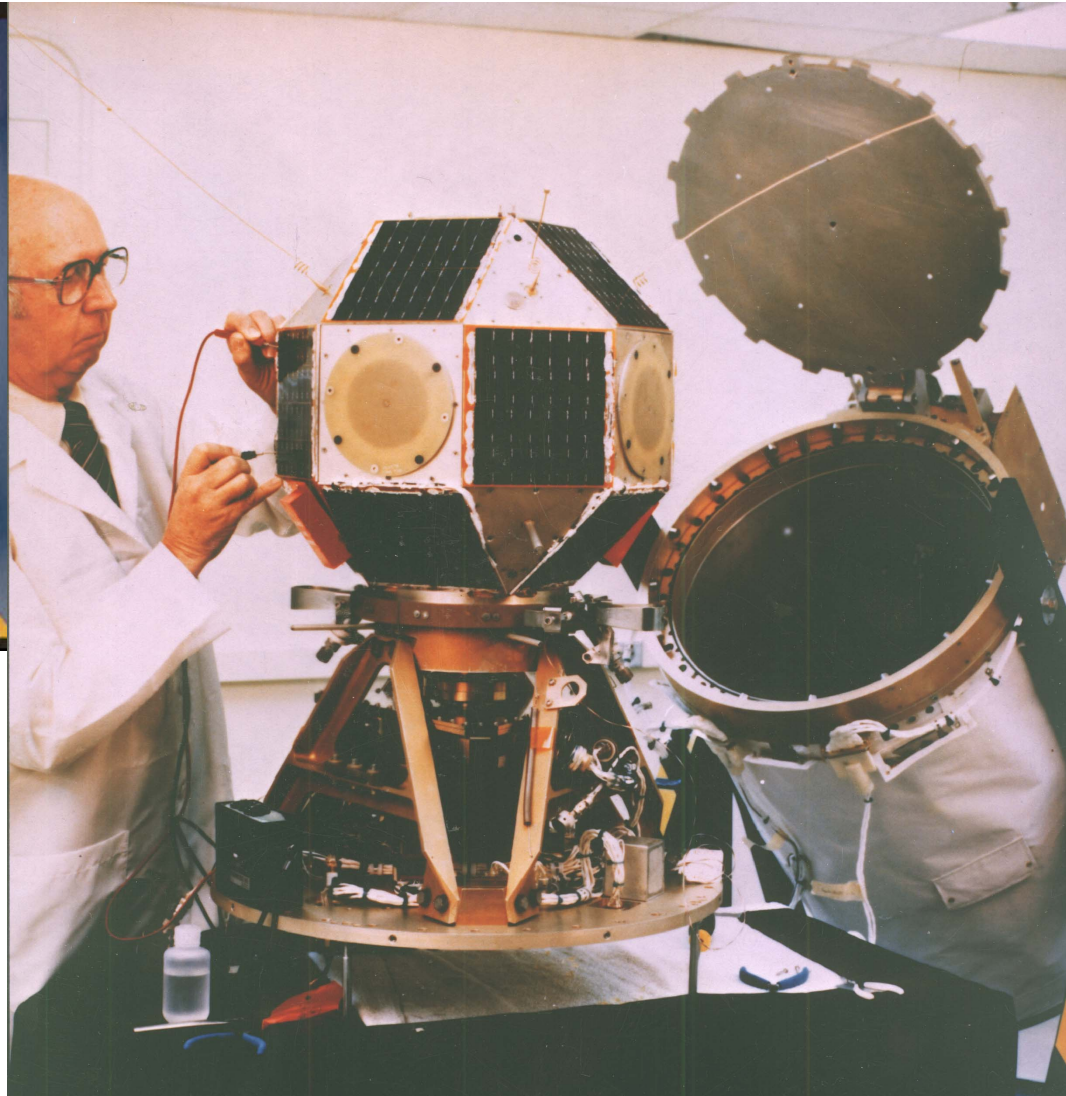
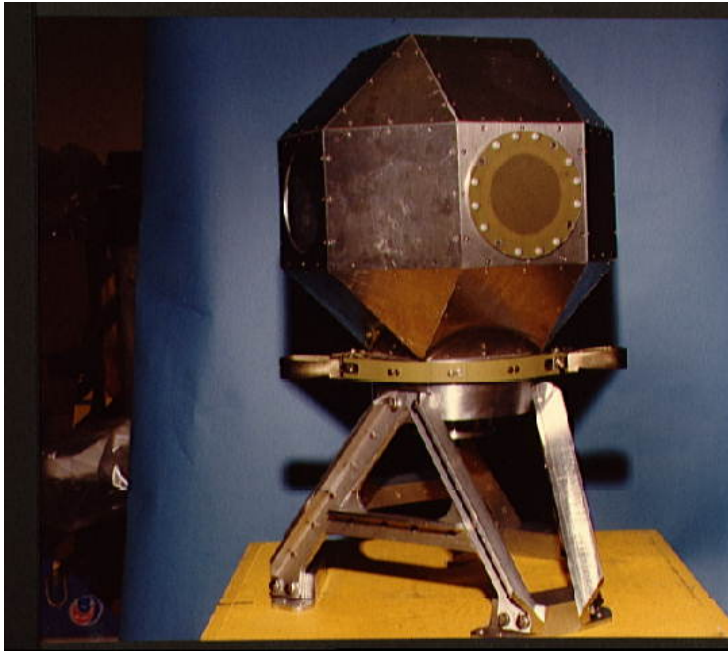
# Get Away Special (GAS)



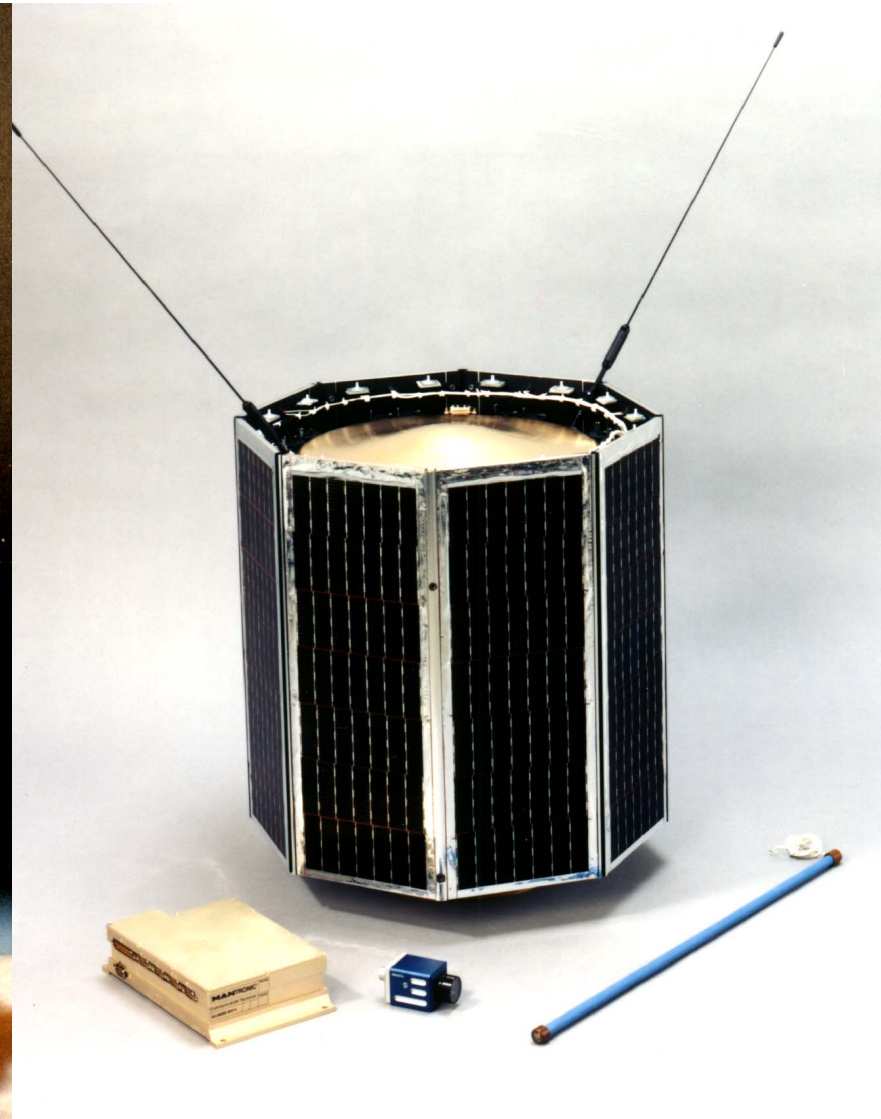
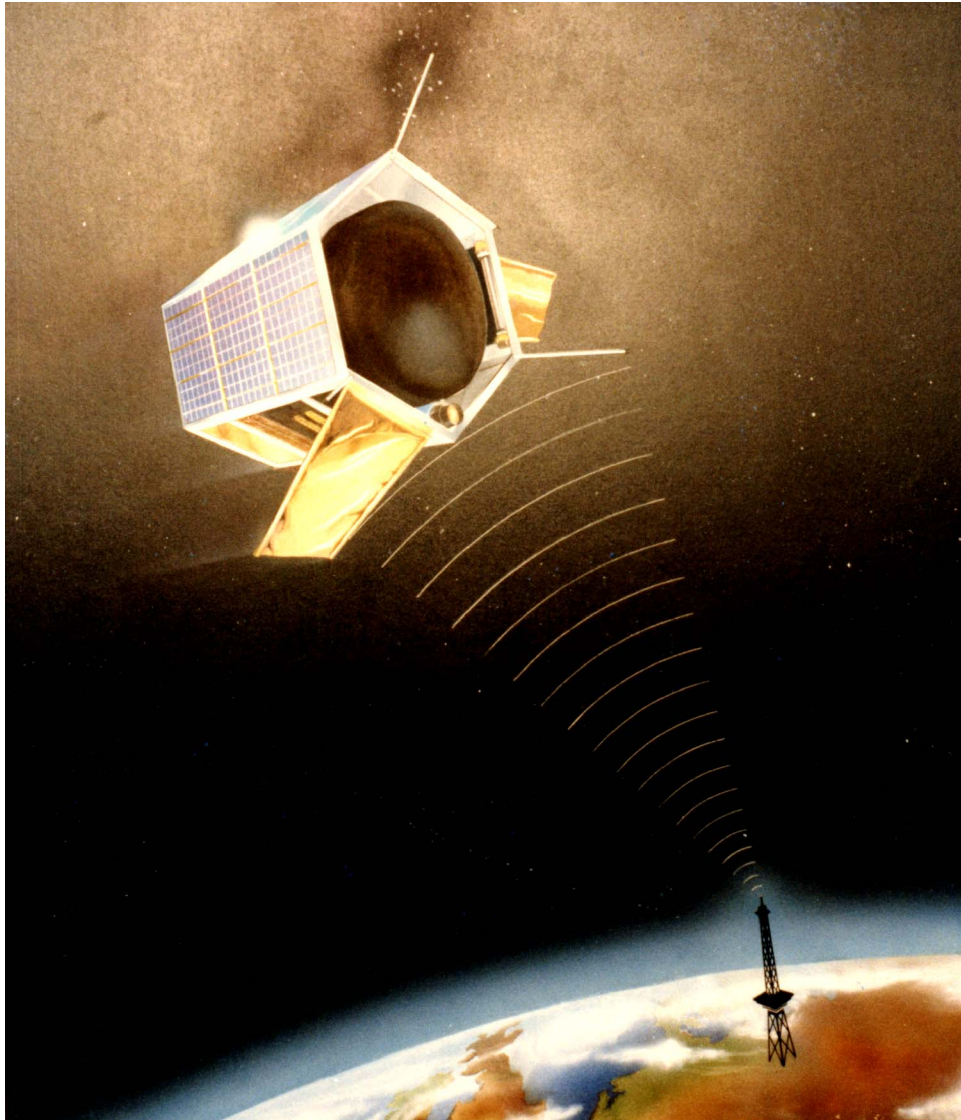




# North Utah Satellite (NUSAT)

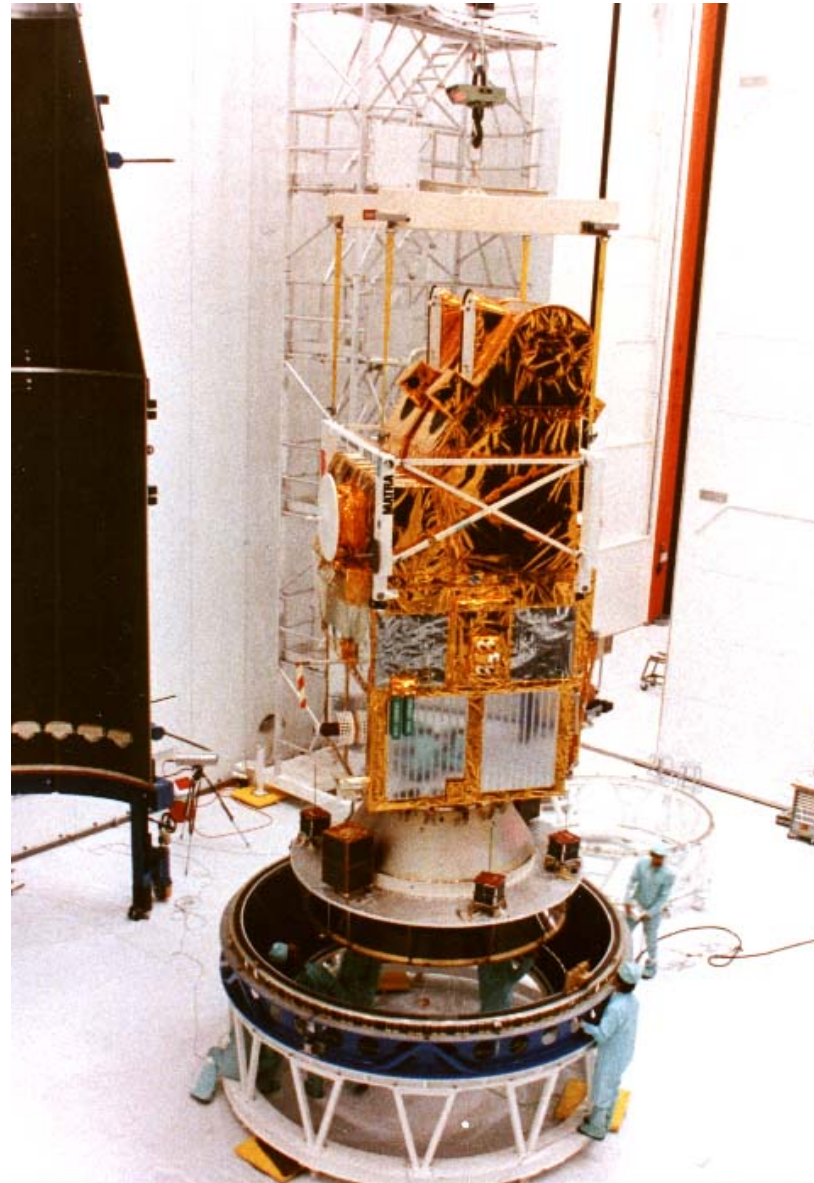








# Ariane: ASAP (First Flight)

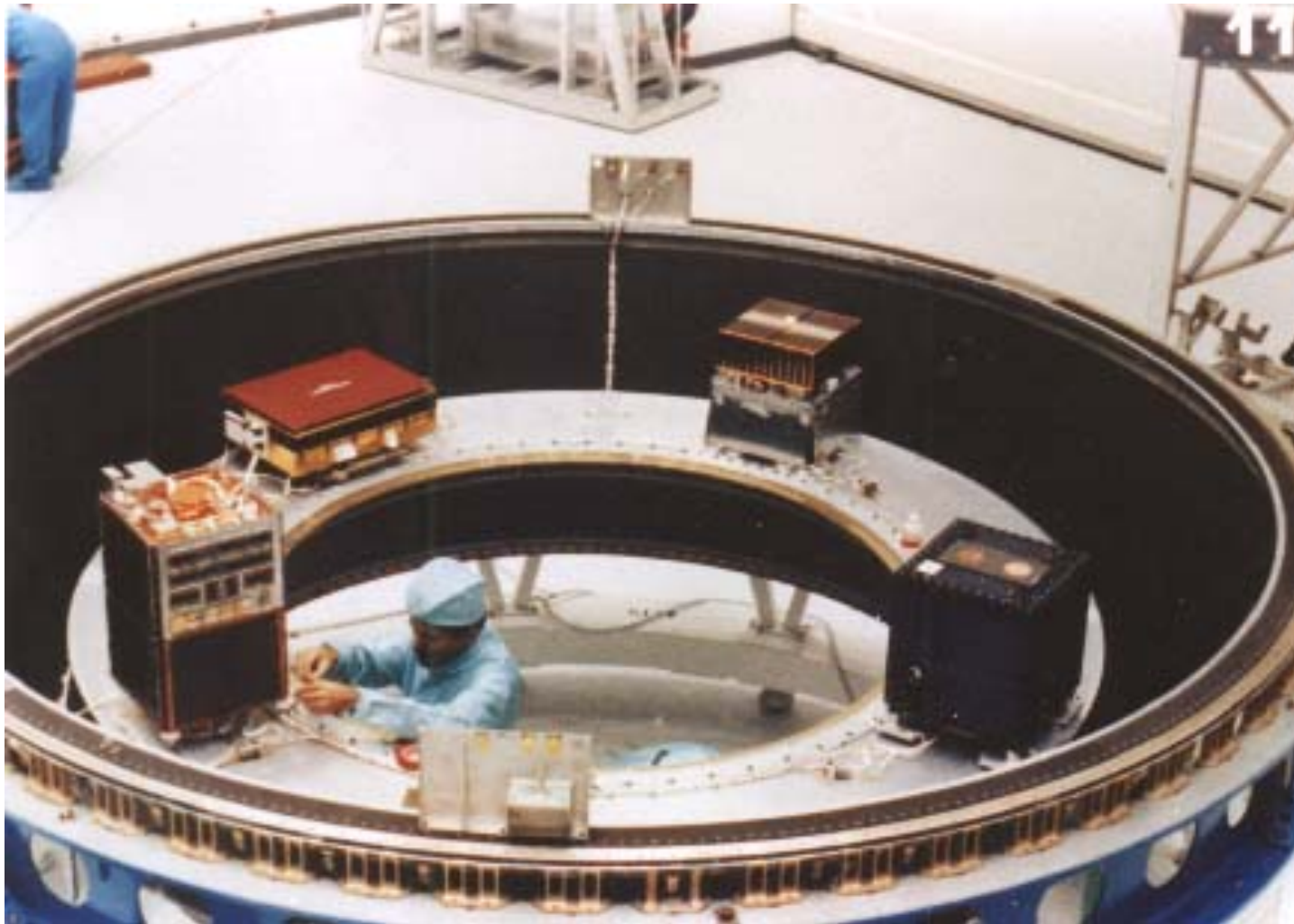




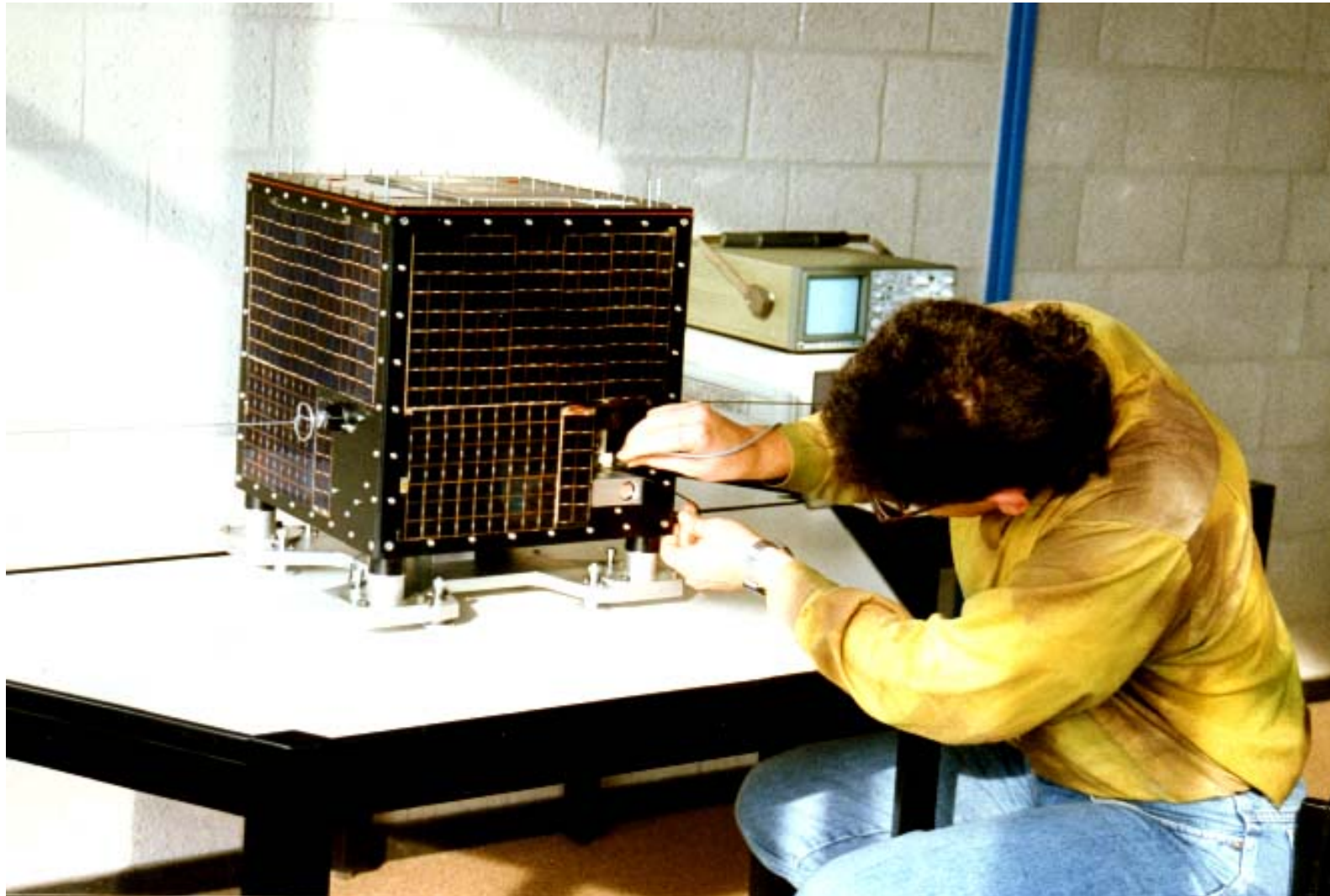


# Ariane: ASAP (Second Flight)

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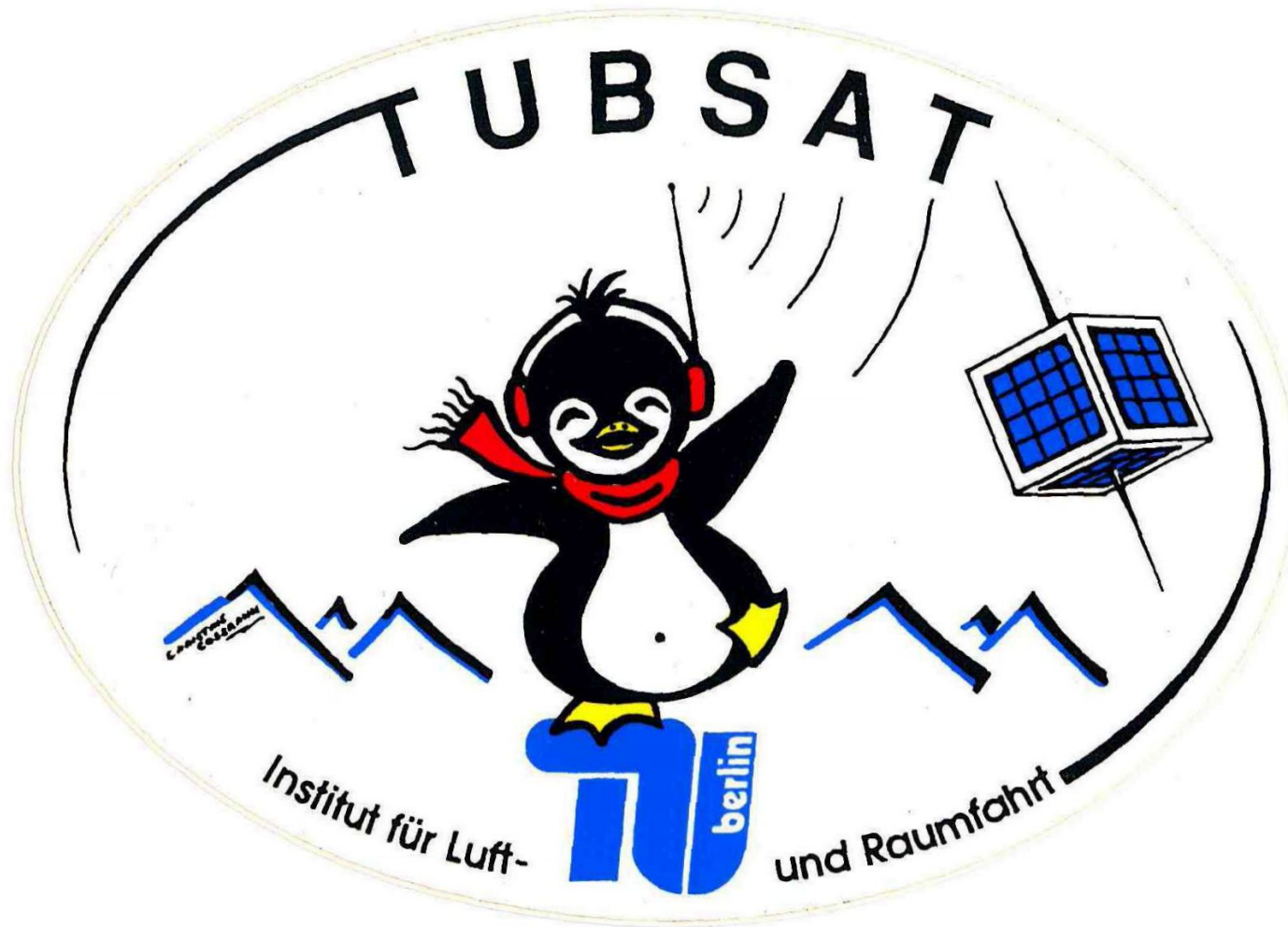


# TUBSAT-A



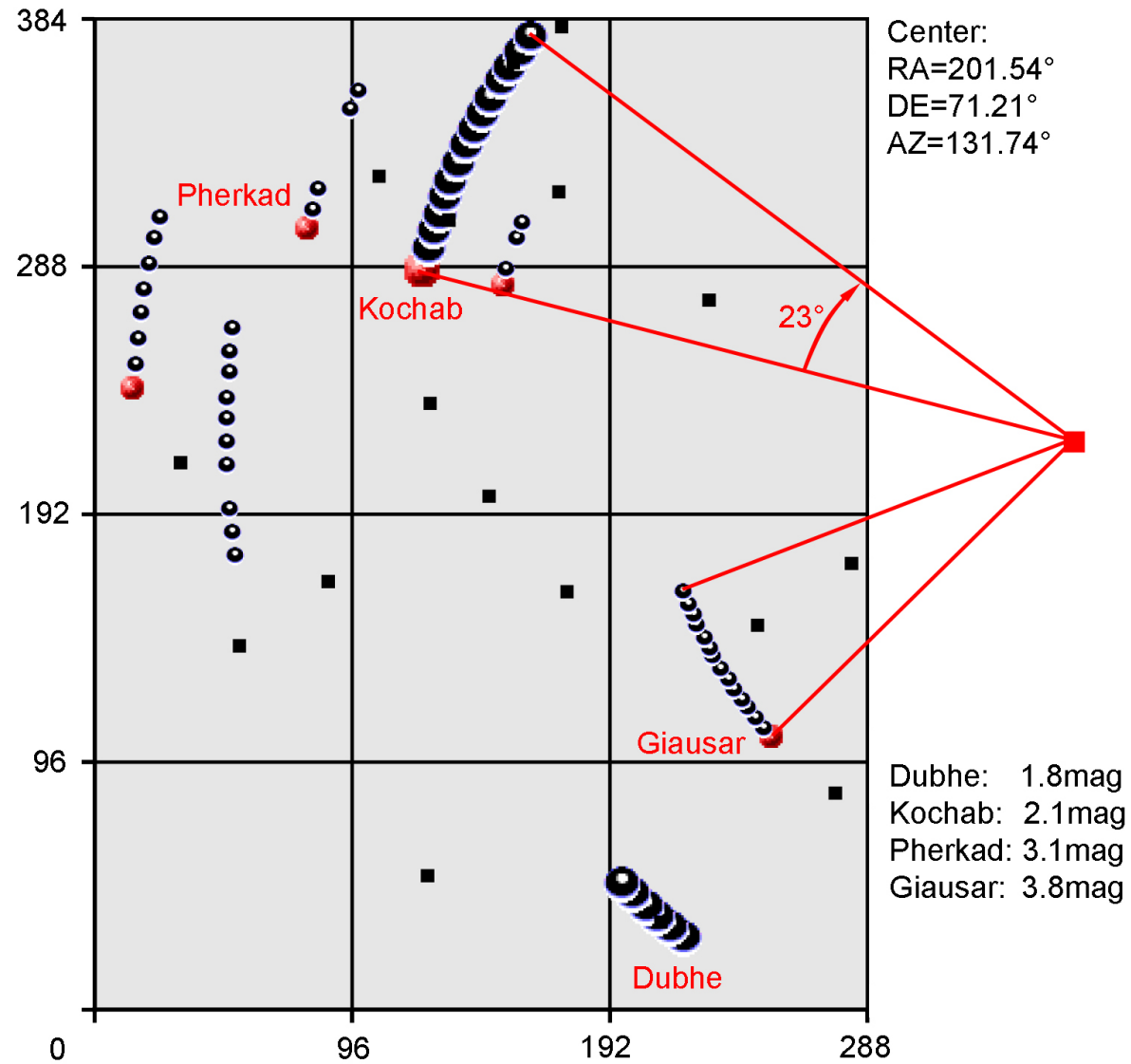


# TUBSAT-A





# Star Image







# Fixed Ground Station TU Berlin

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# Mobile Ground Station

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# North Pole-Expedition (Weber-Malakov )





# Spitsbergen-Expedition (Prof. Trinks)

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# Icesail-Expedition (Arved Fuchs)

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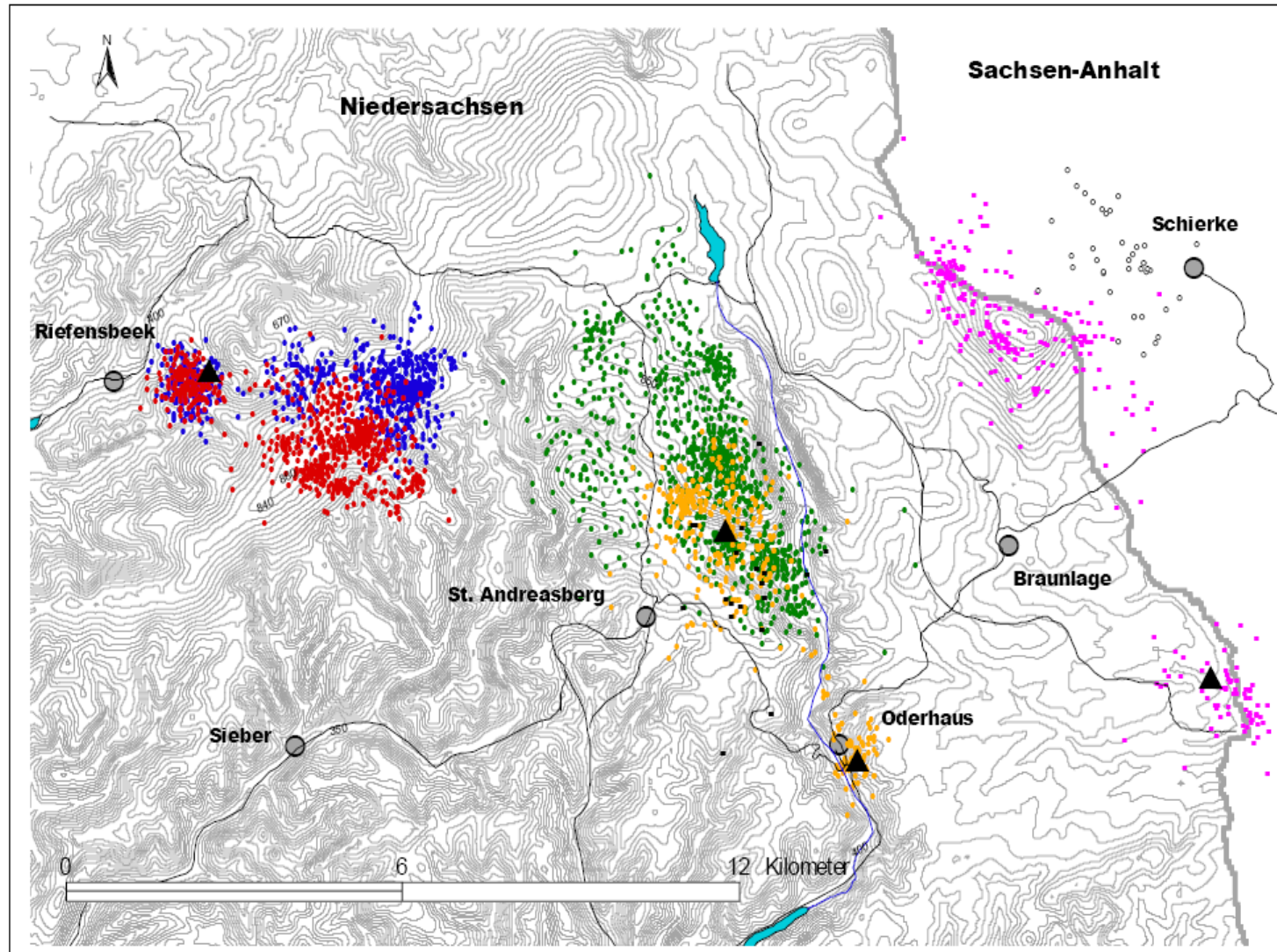


# Deers in the Harz Forest

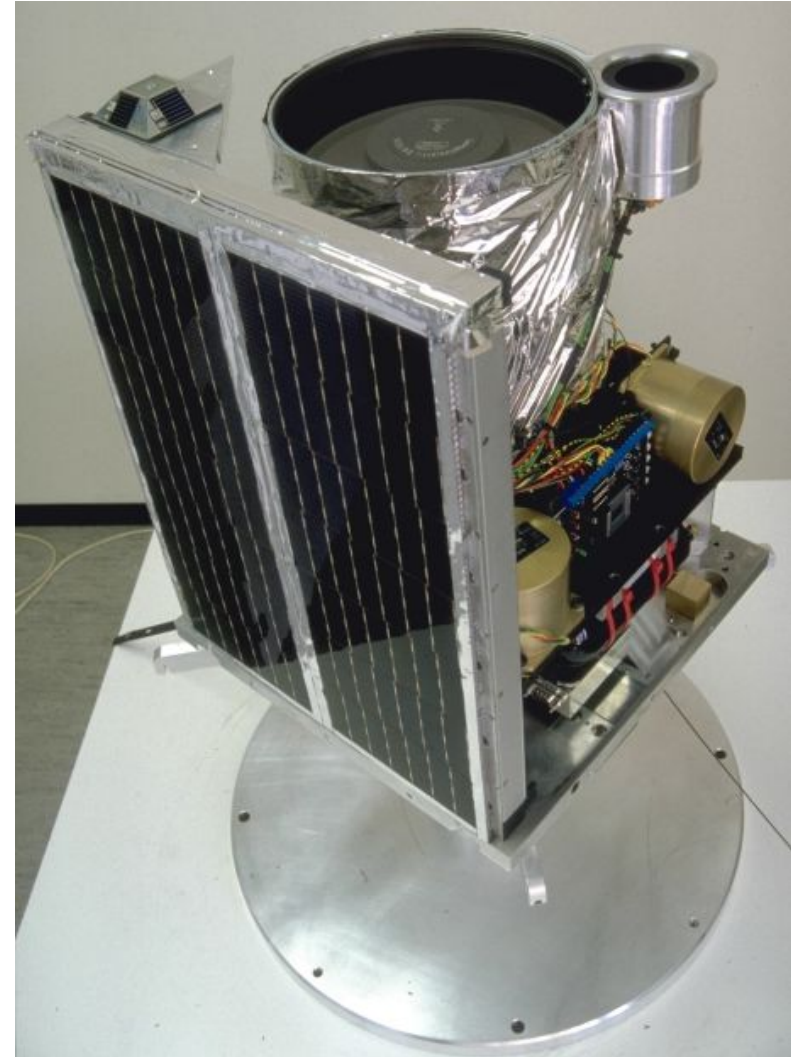
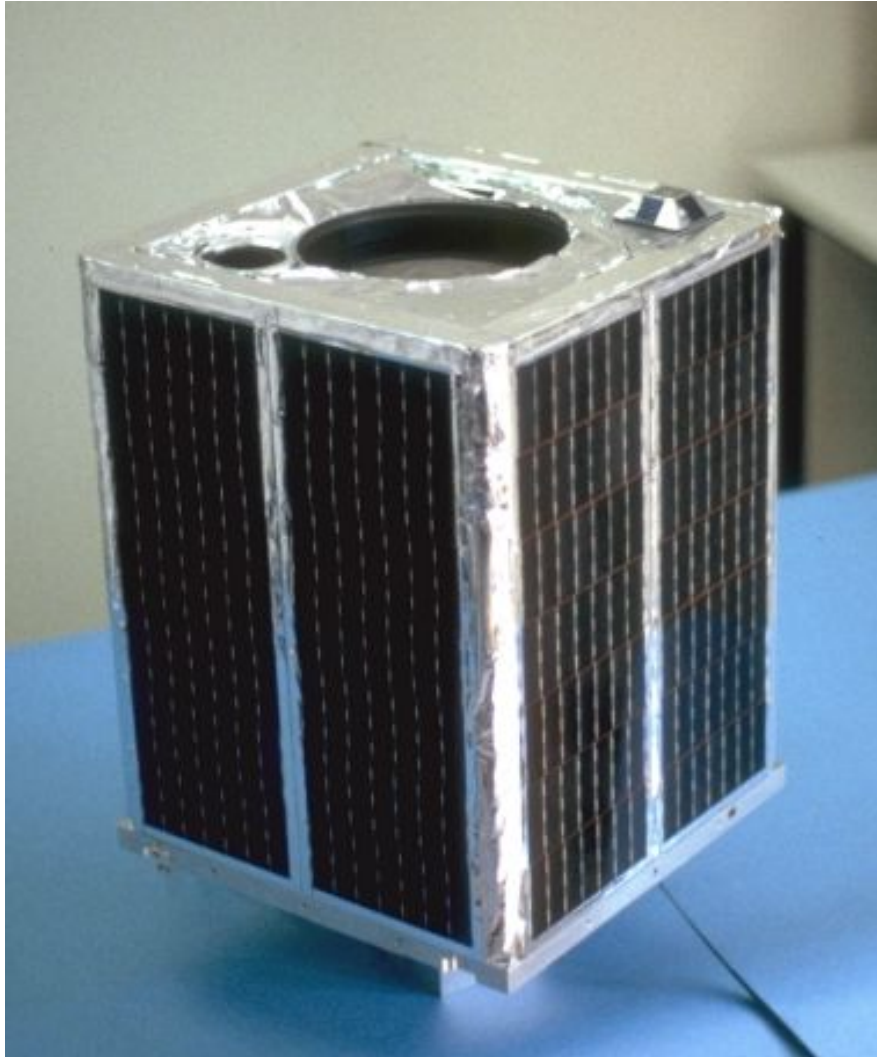
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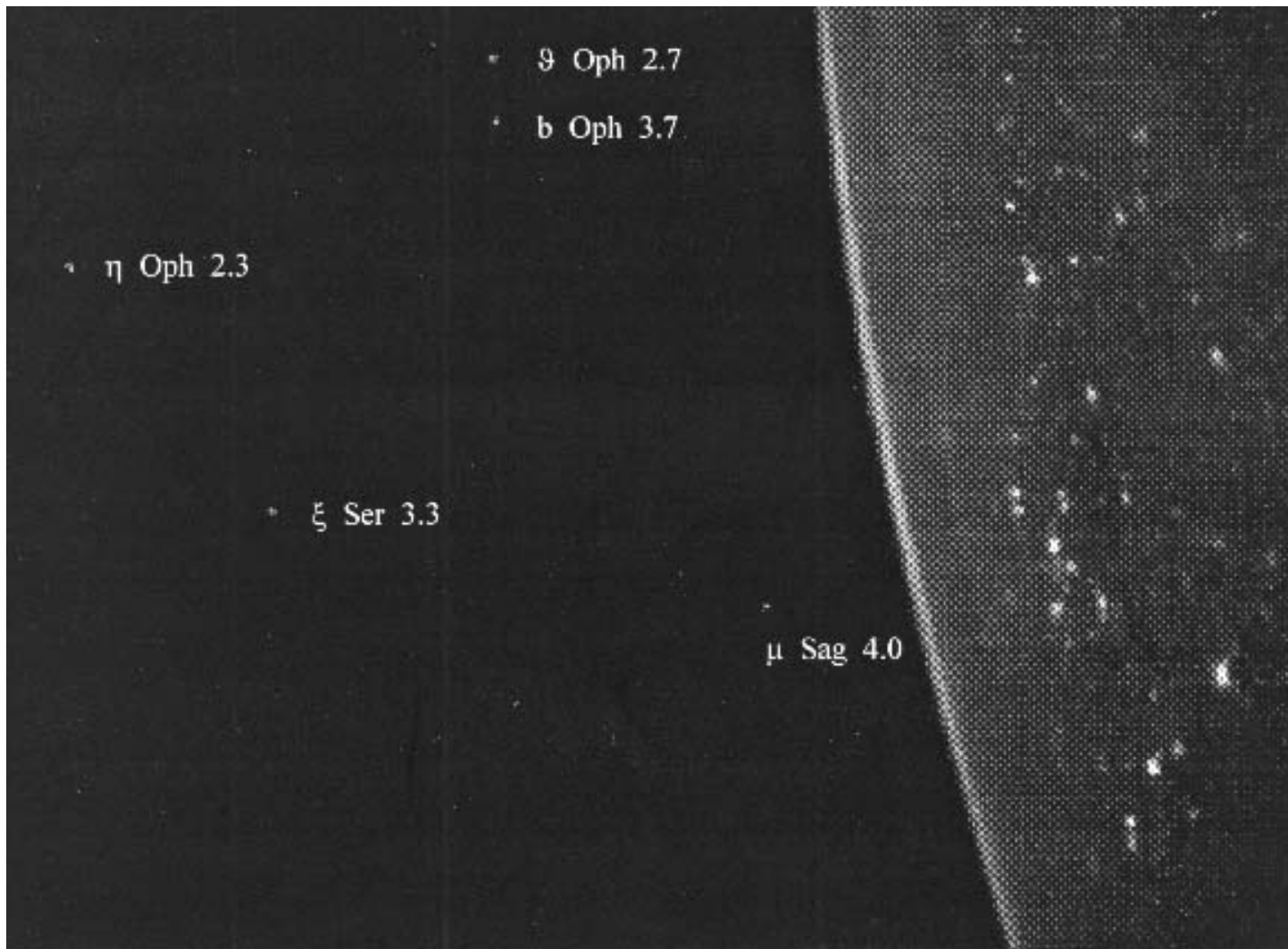
# Deers in the Harz Forest



# TUBSAT-B



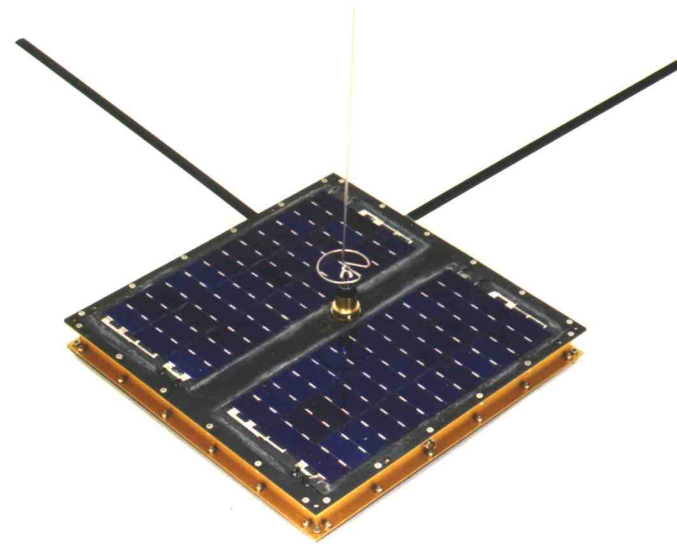
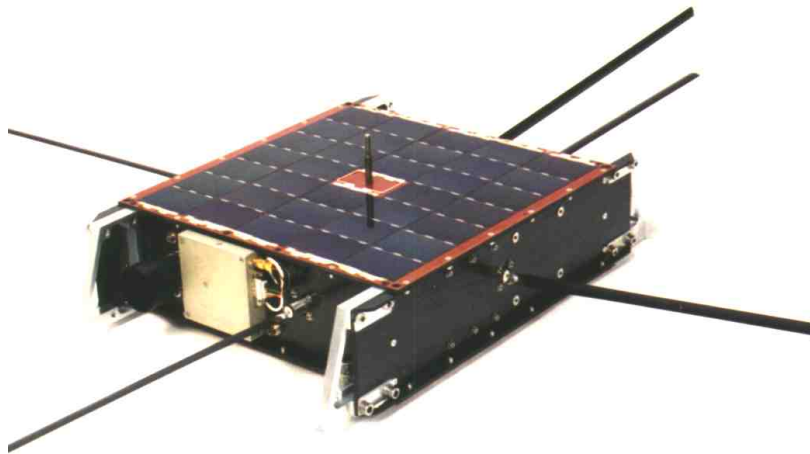






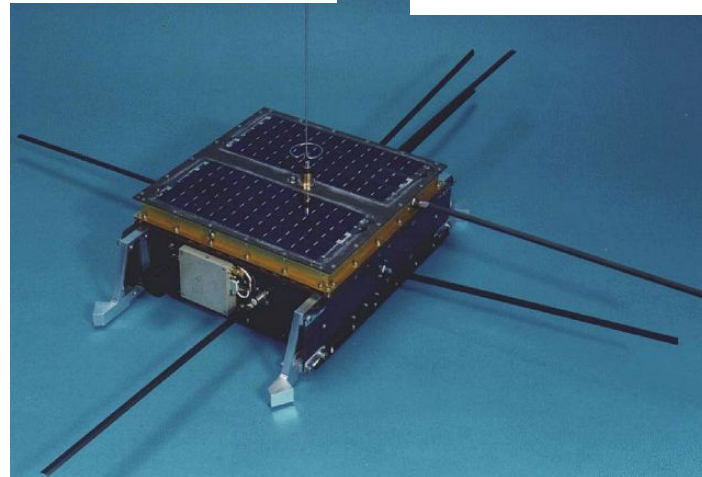
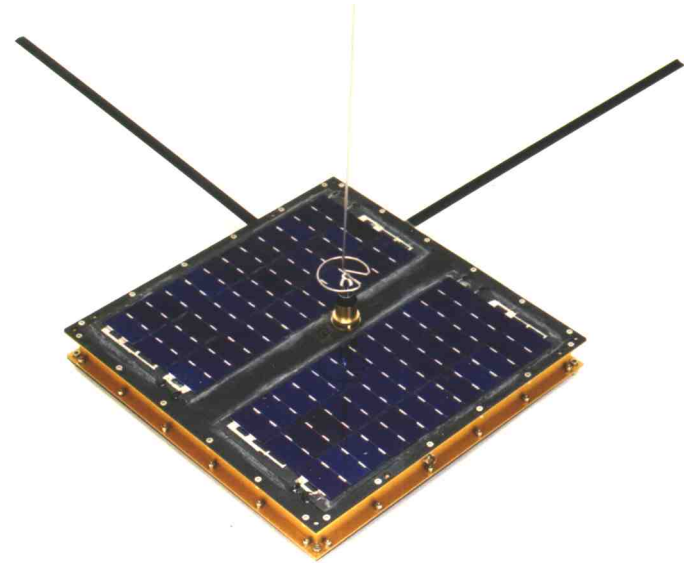
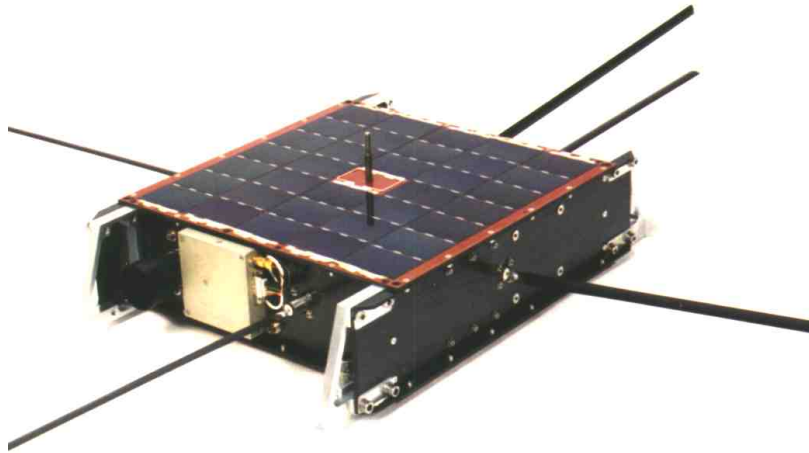
# TUBSAT-N/N1

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# TUBSAT-N/N1

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# Submarine Launch

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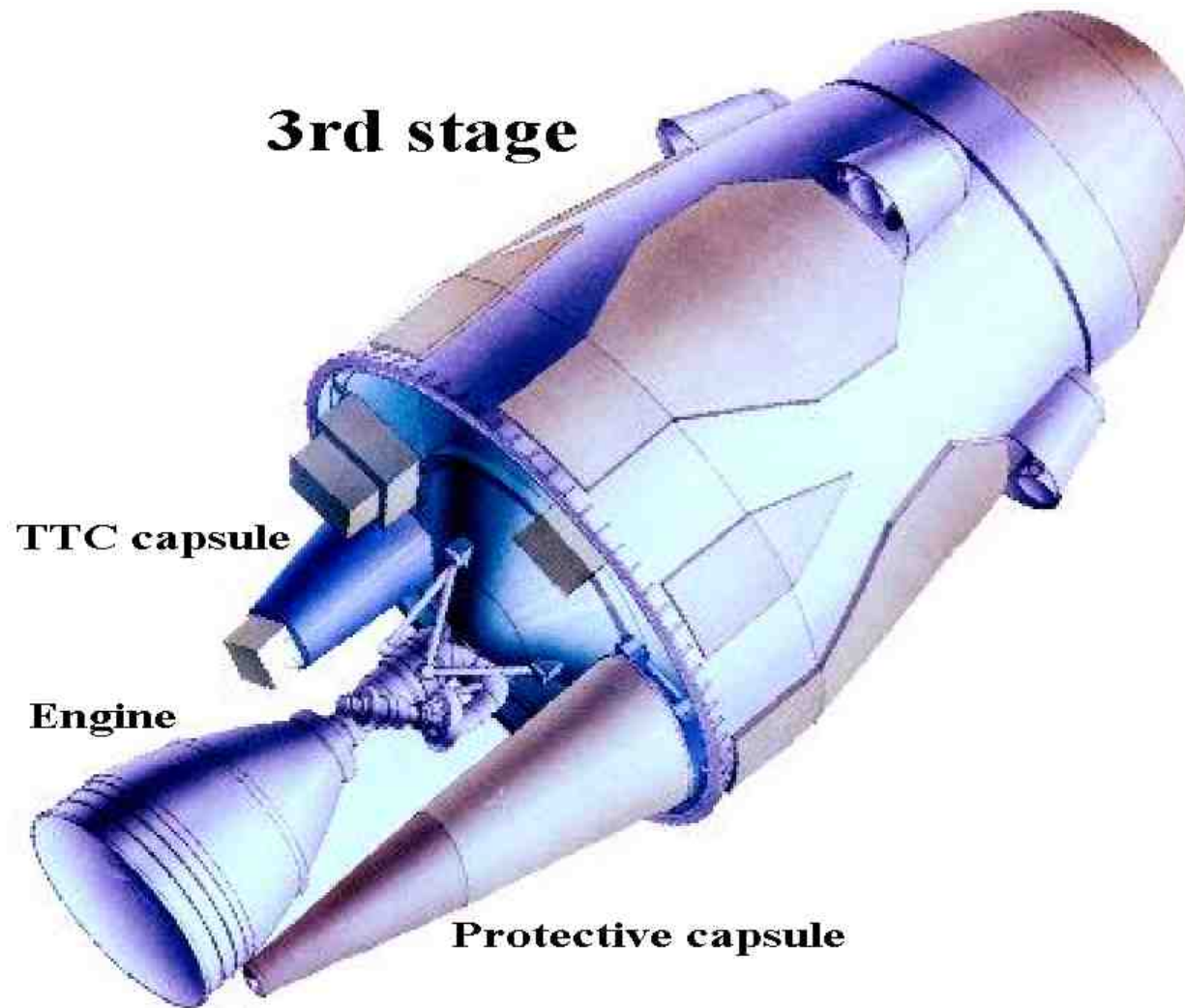


# Submarine Launch



# Submarine Launch

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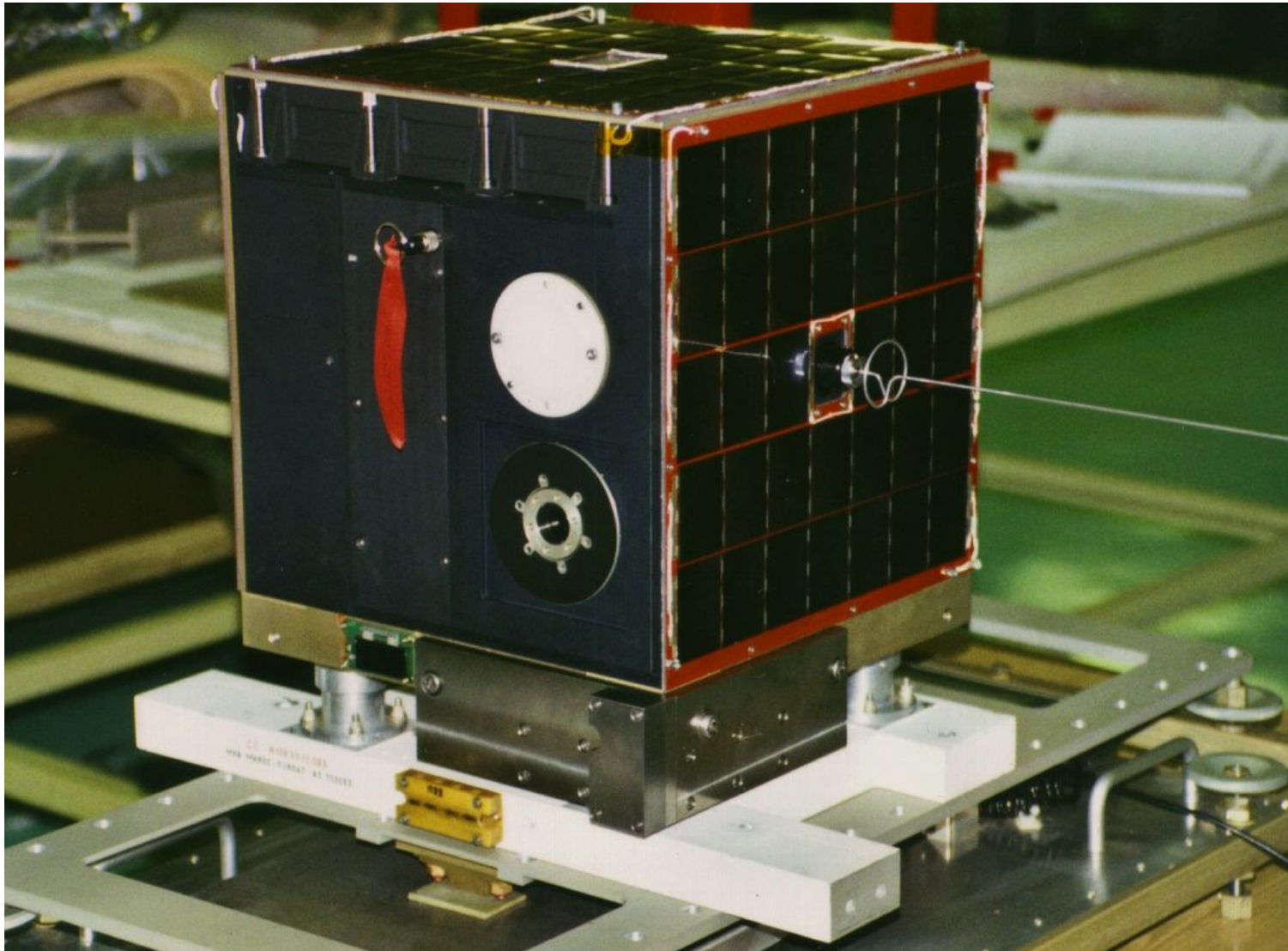
# Submarine Launch

---



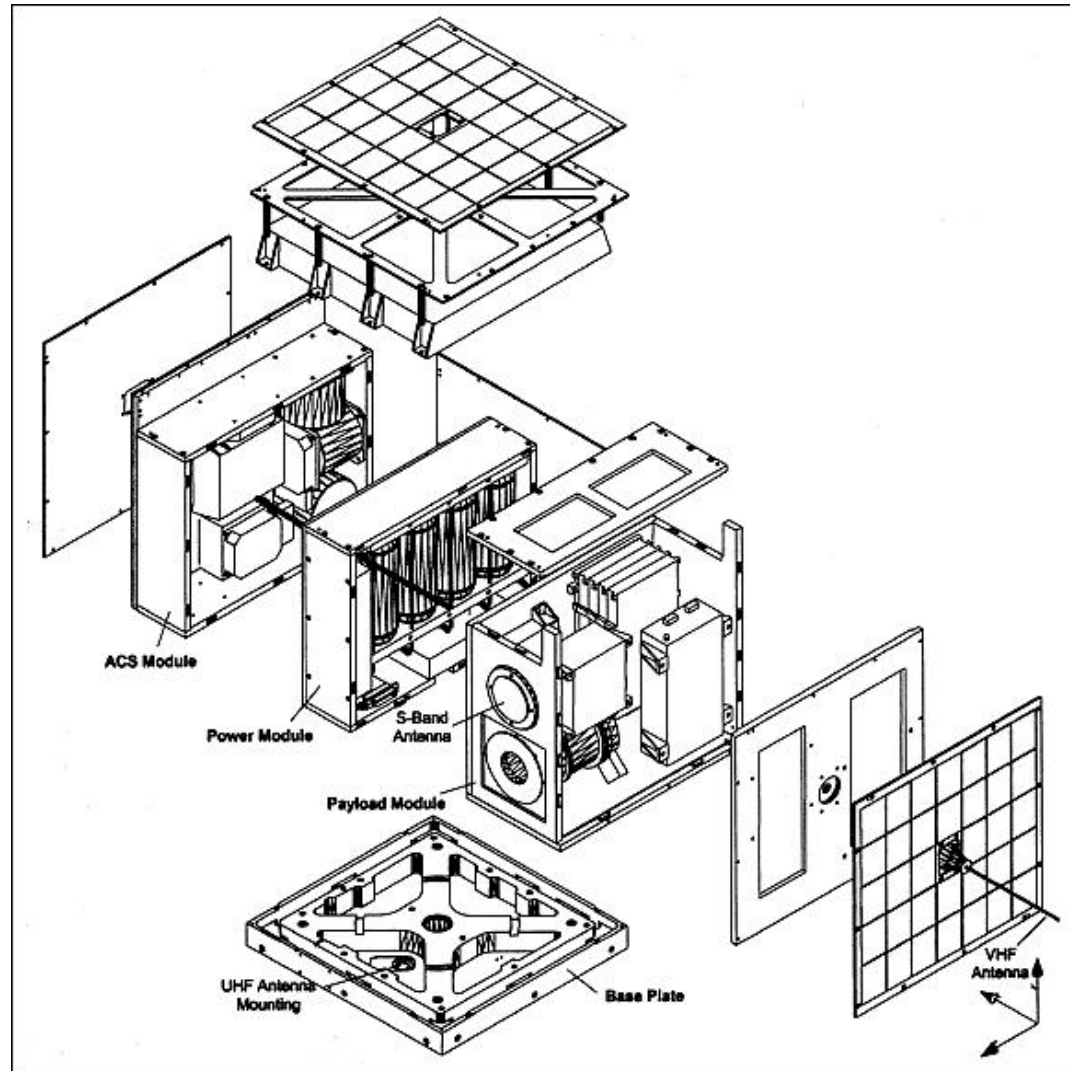


# MAROC-TUBSAT



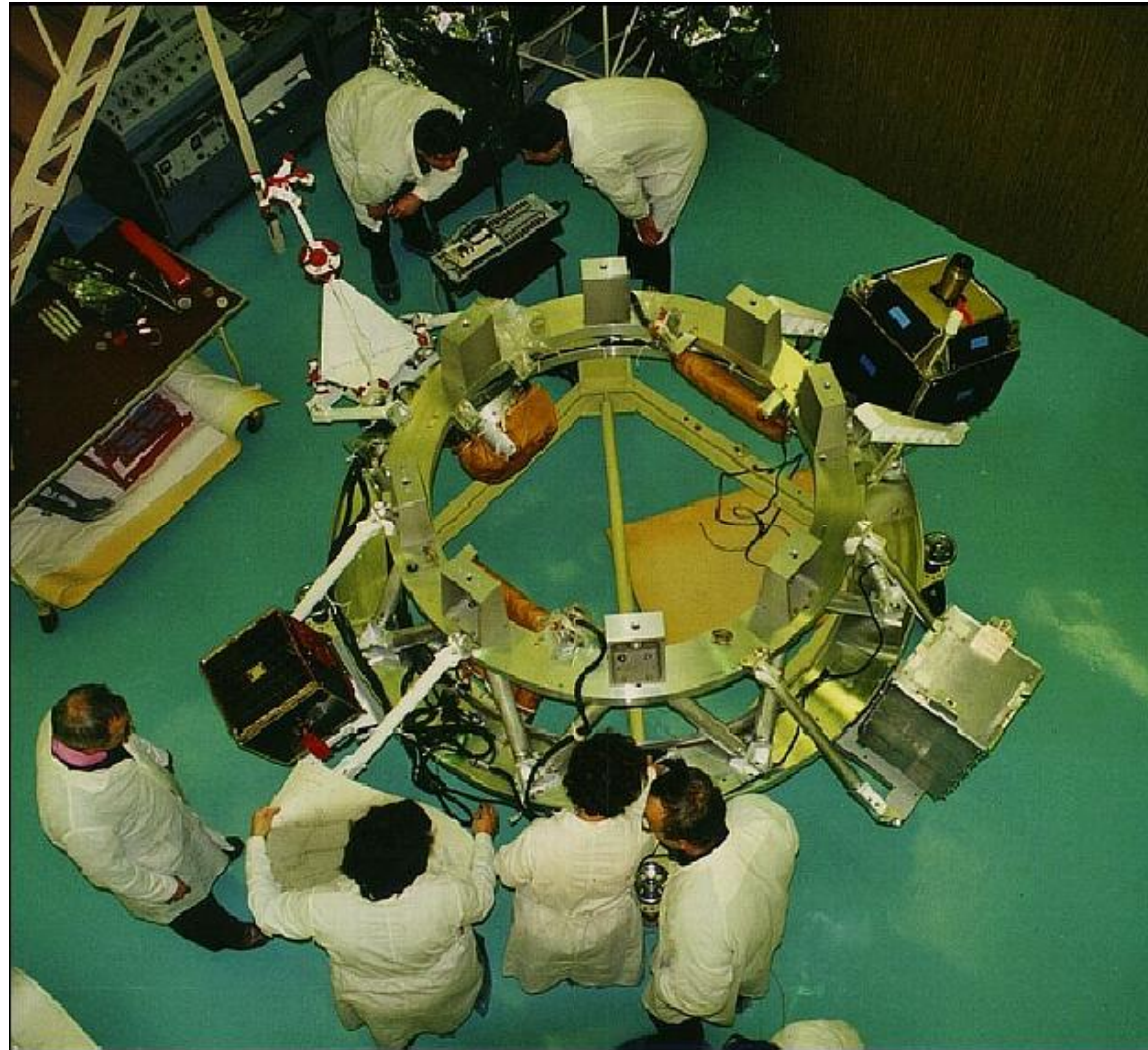


# MAROC-TUBSAT



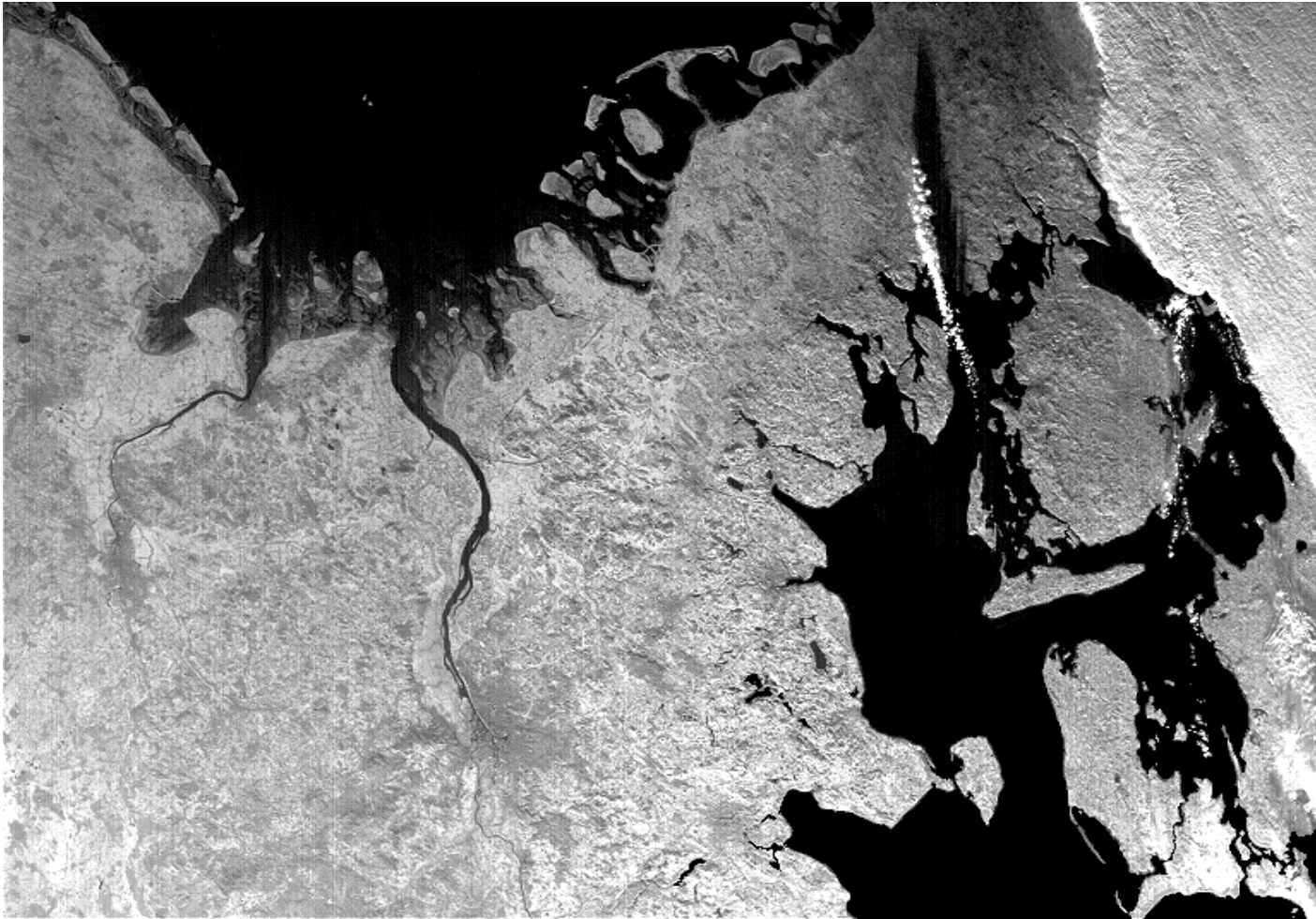


# Launch on Zenith



# Hamburg

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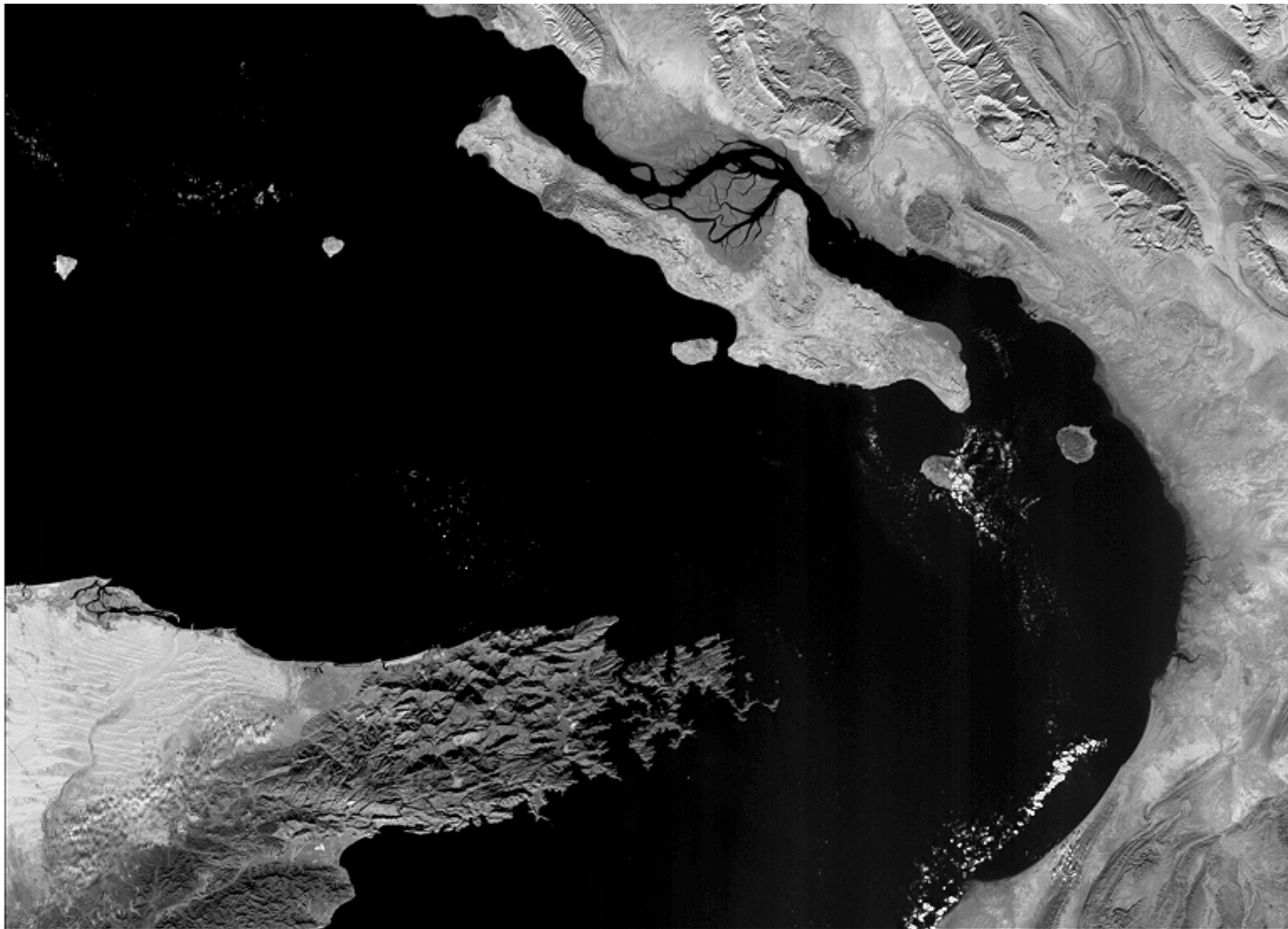


**Hamburg, Germany, 12. December 2002**



# Oman, Golf

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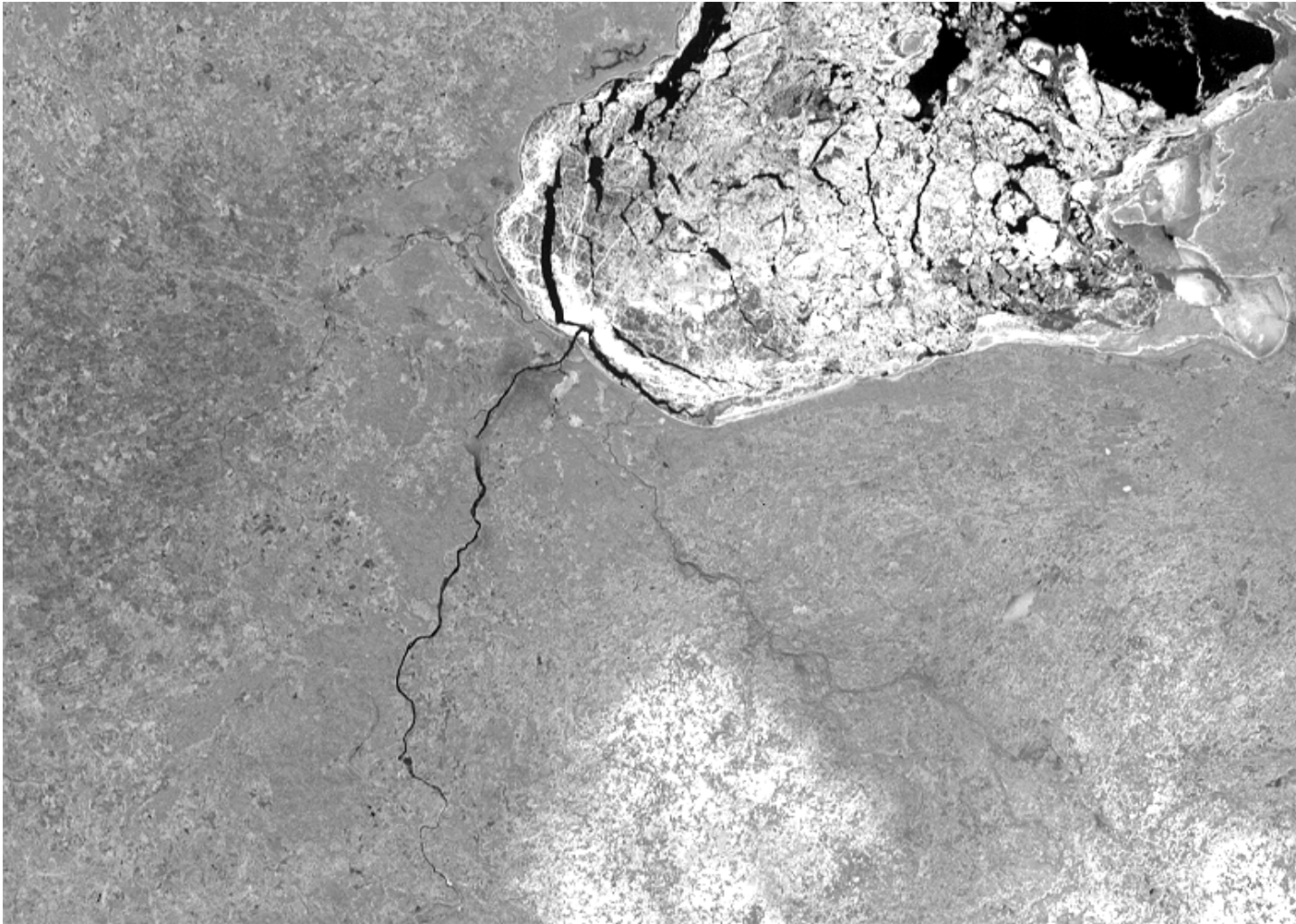


**Street of Hormoz, United Arab Emirates, Iran, 07.February 2003**

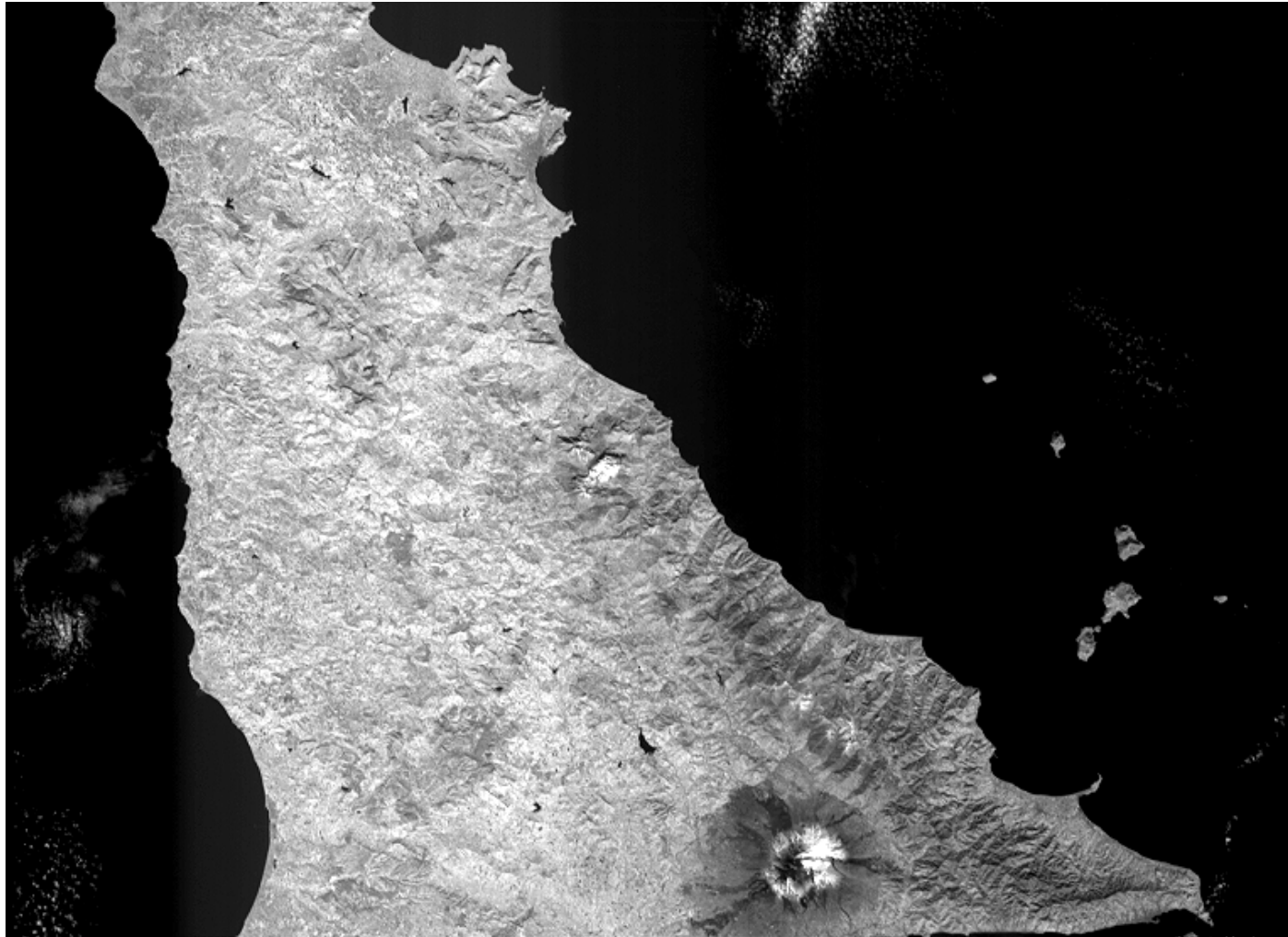


# Ice Fields in Siberia

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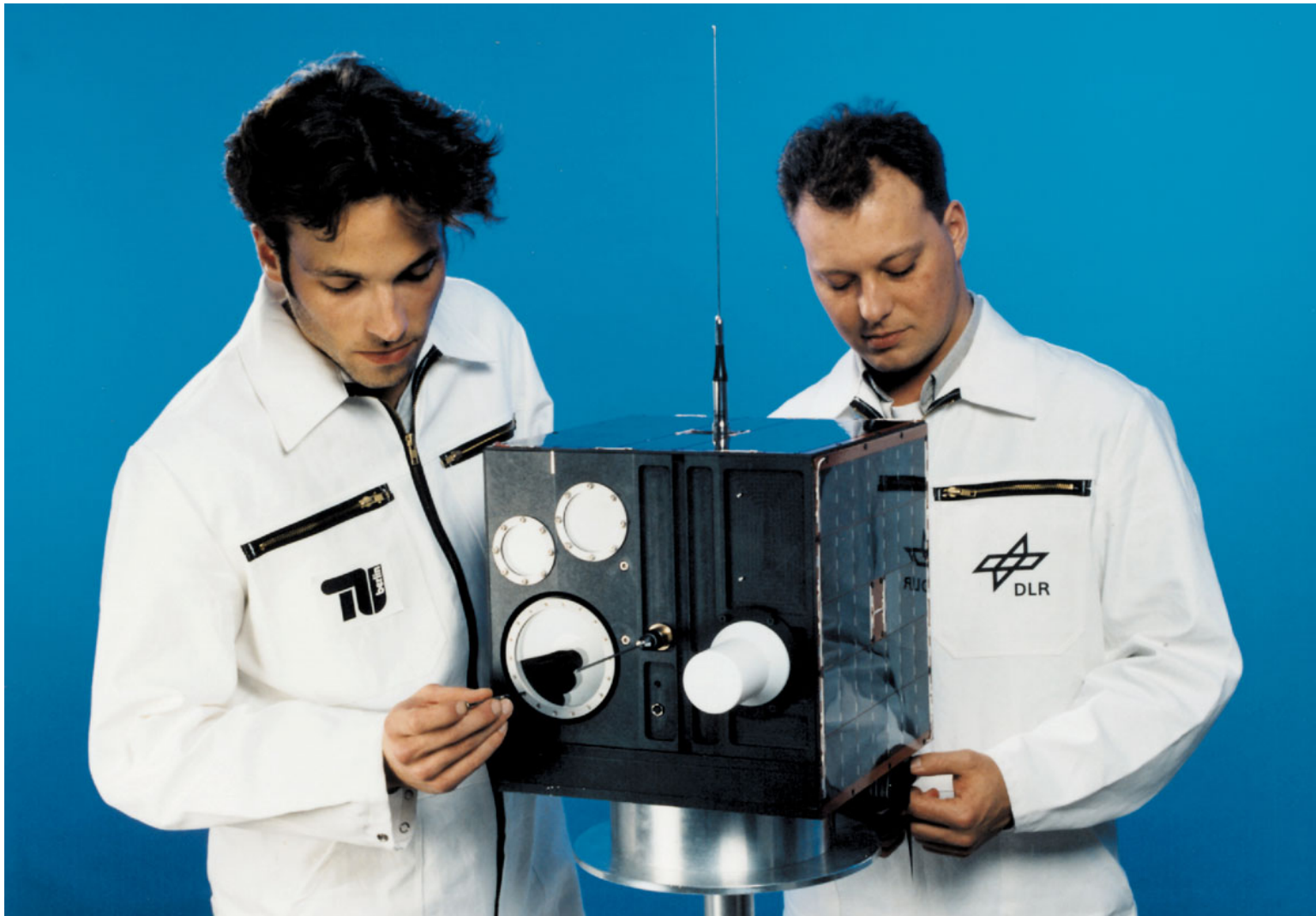
**Bay of Riga, Latvia, 27.March 2003**



**Etna, Sicily, 26.March 2003**



# DLR-TUBSAT

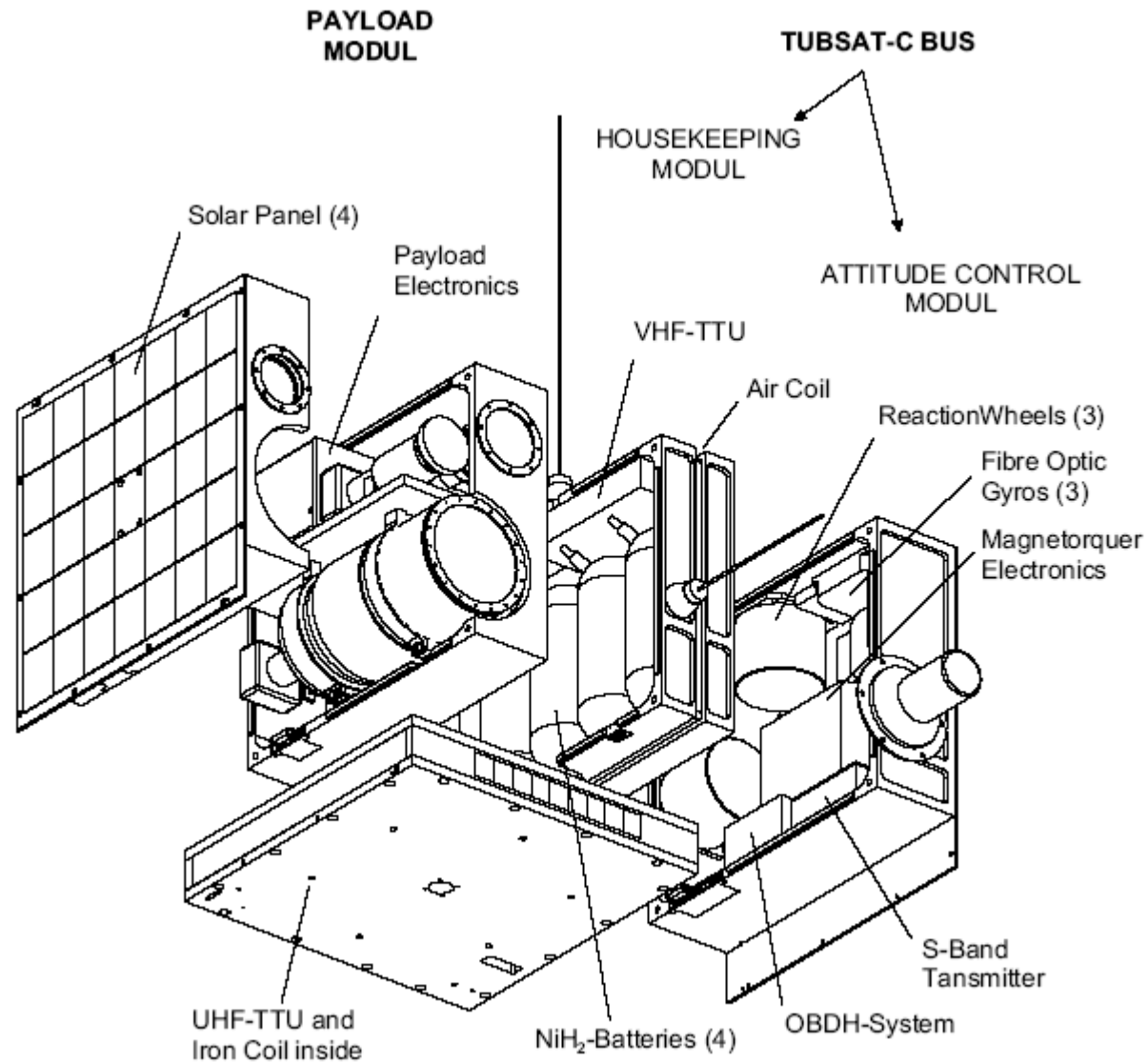




# DLR-TUBSAT

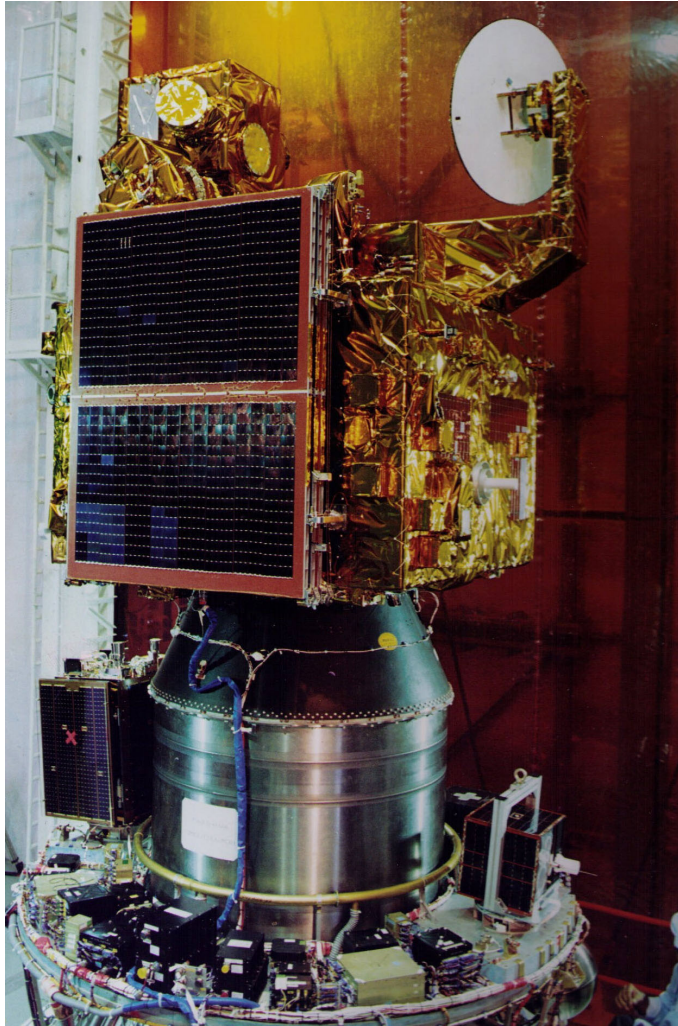


# DLR-TUBSAT



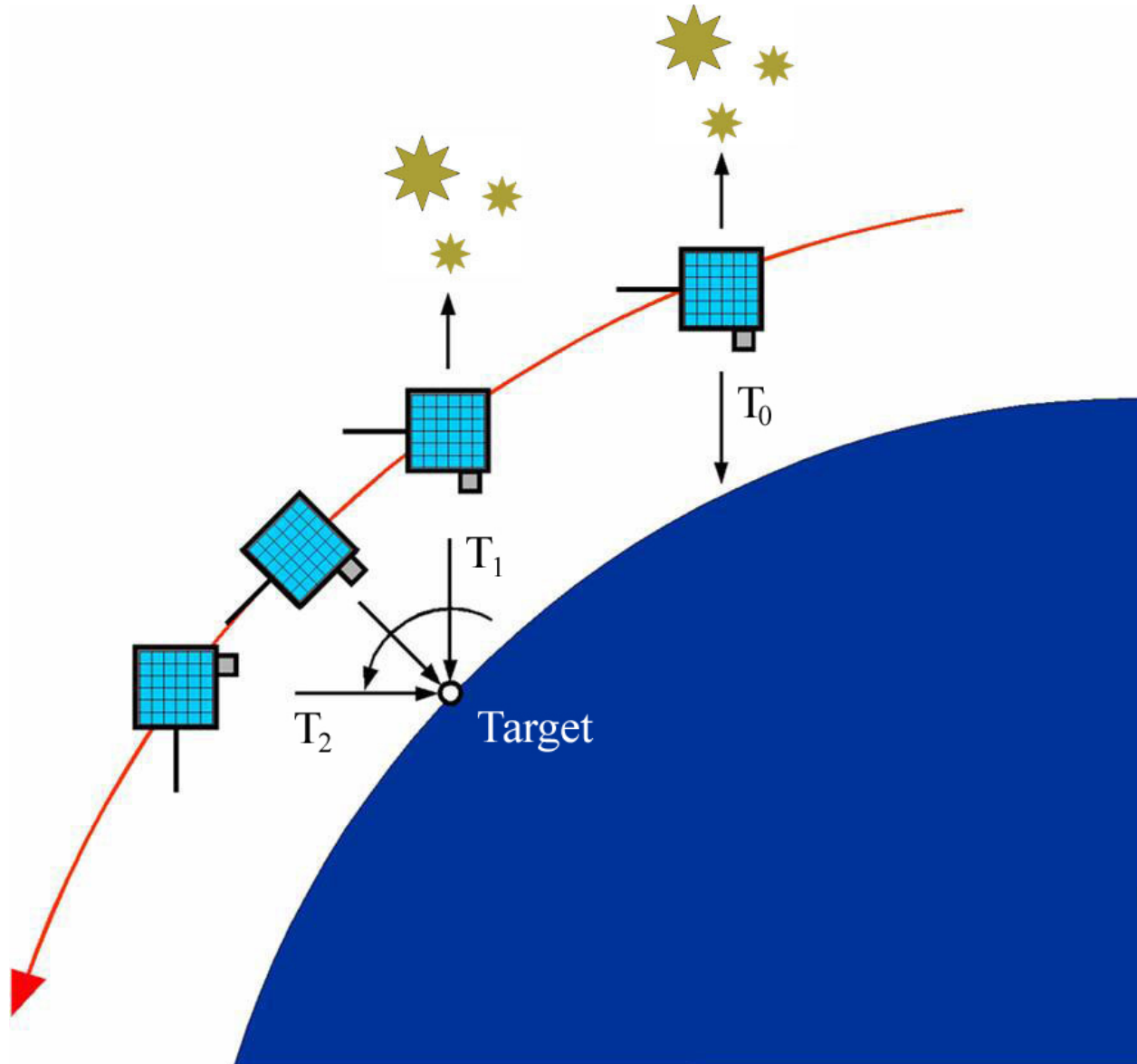


# Launch with PSLV





# Interactive Attitude Control





# LAPAN-Team for LAPAN-TUBSAT

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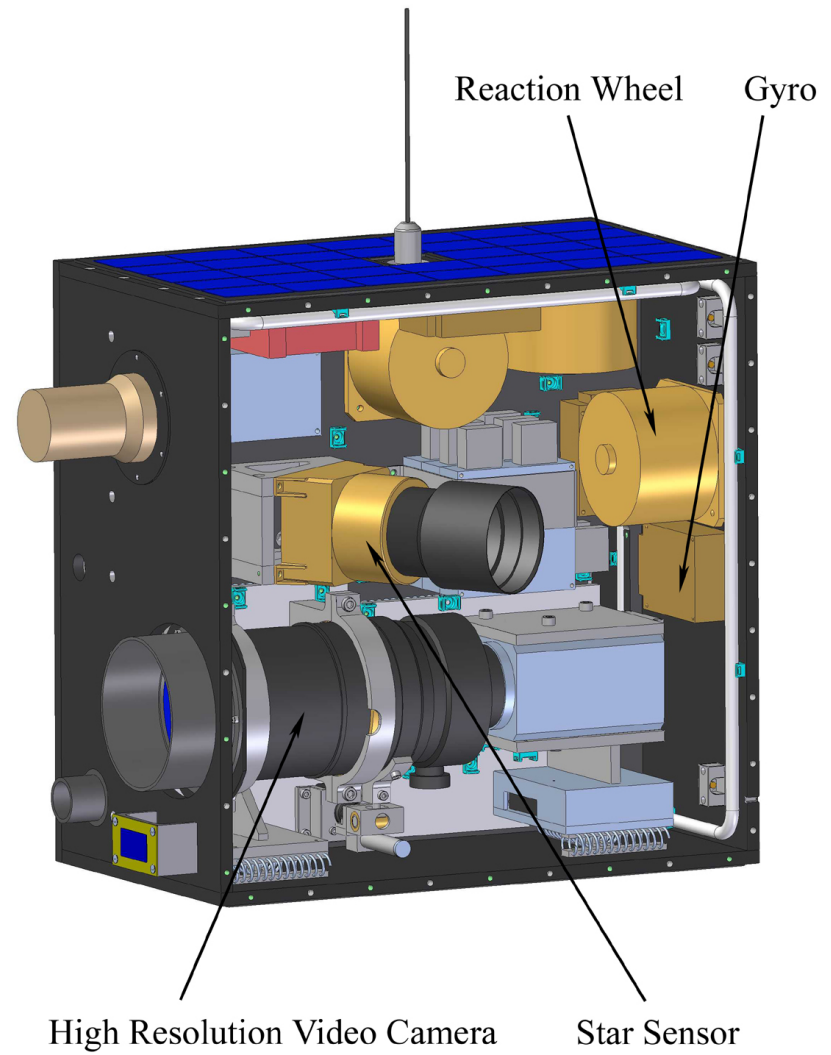
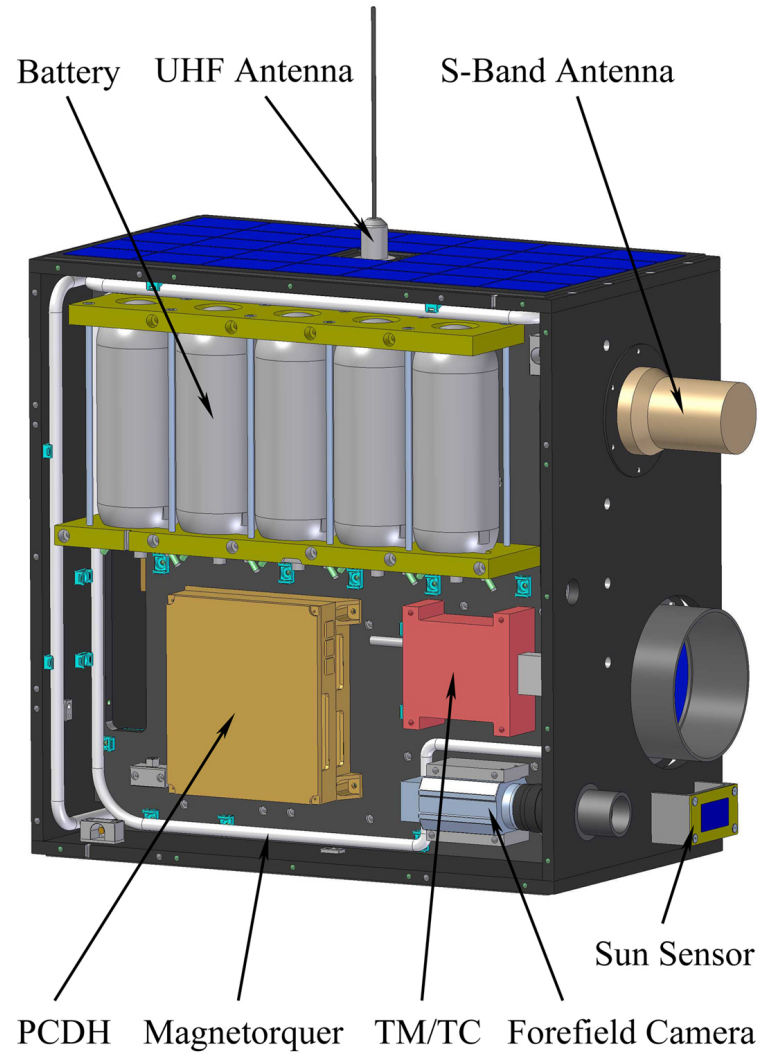


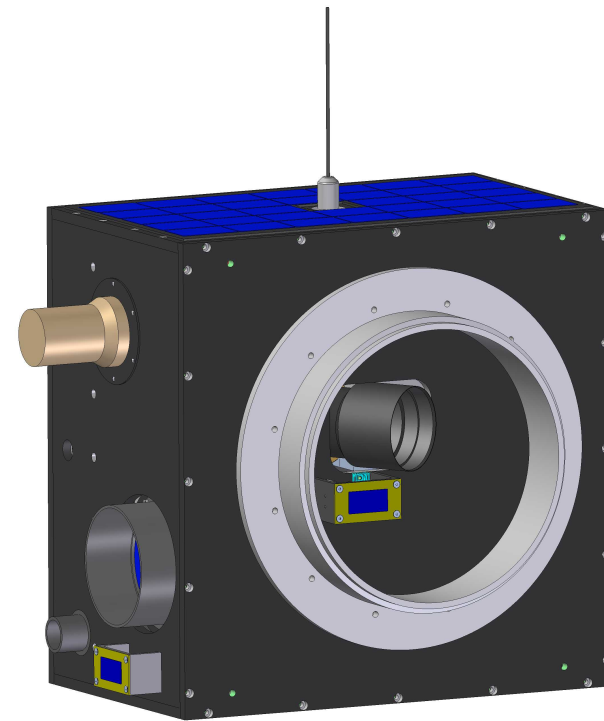
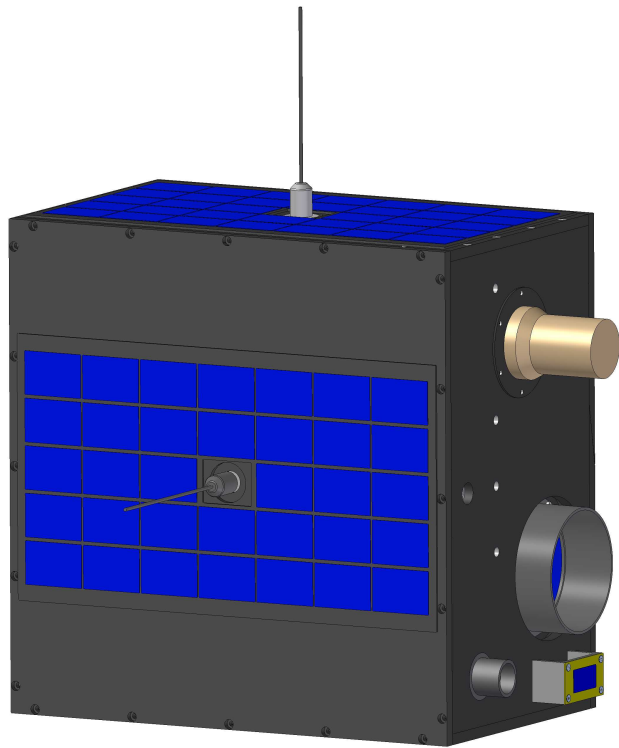
# Plannig





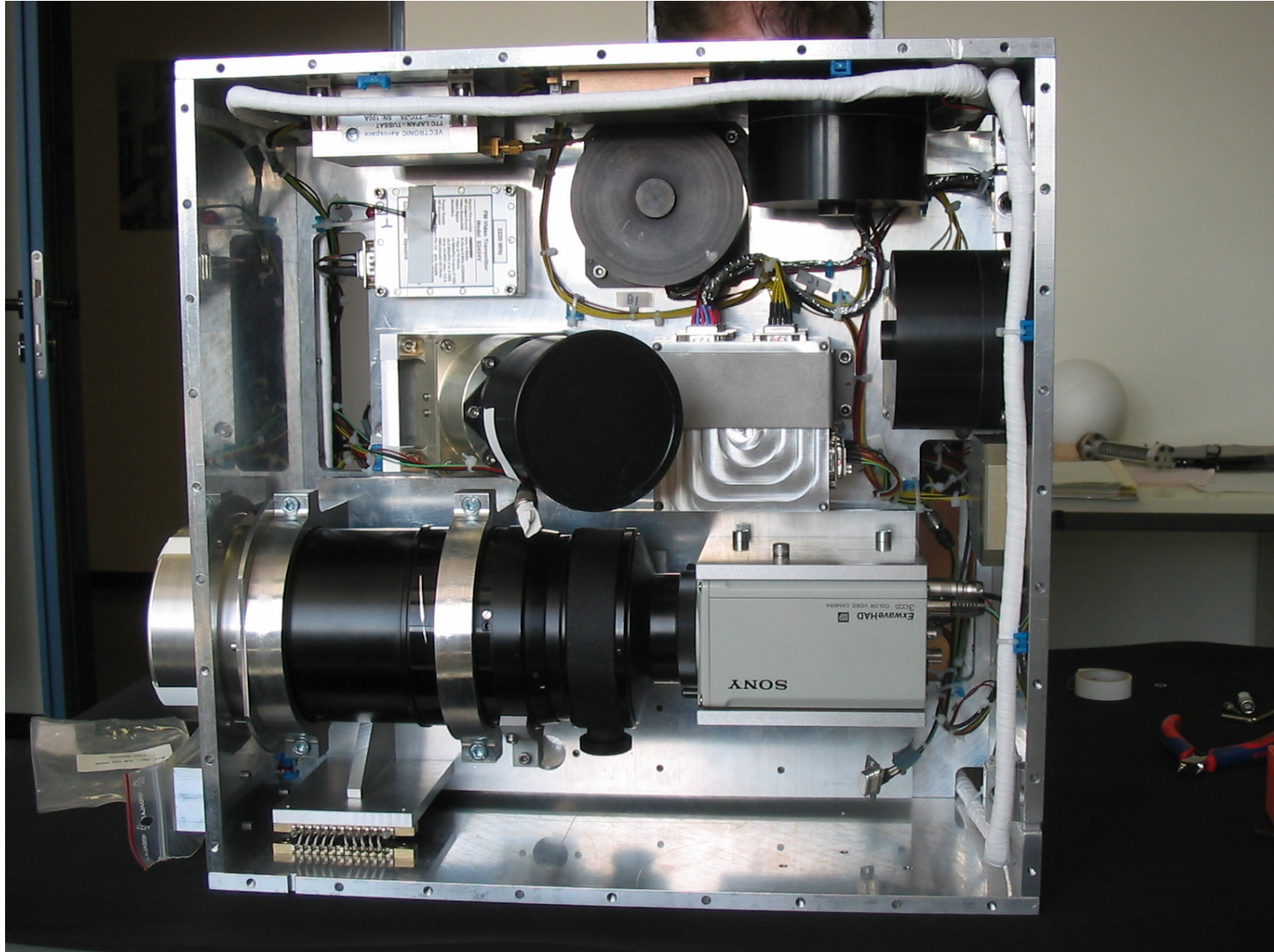
# Design





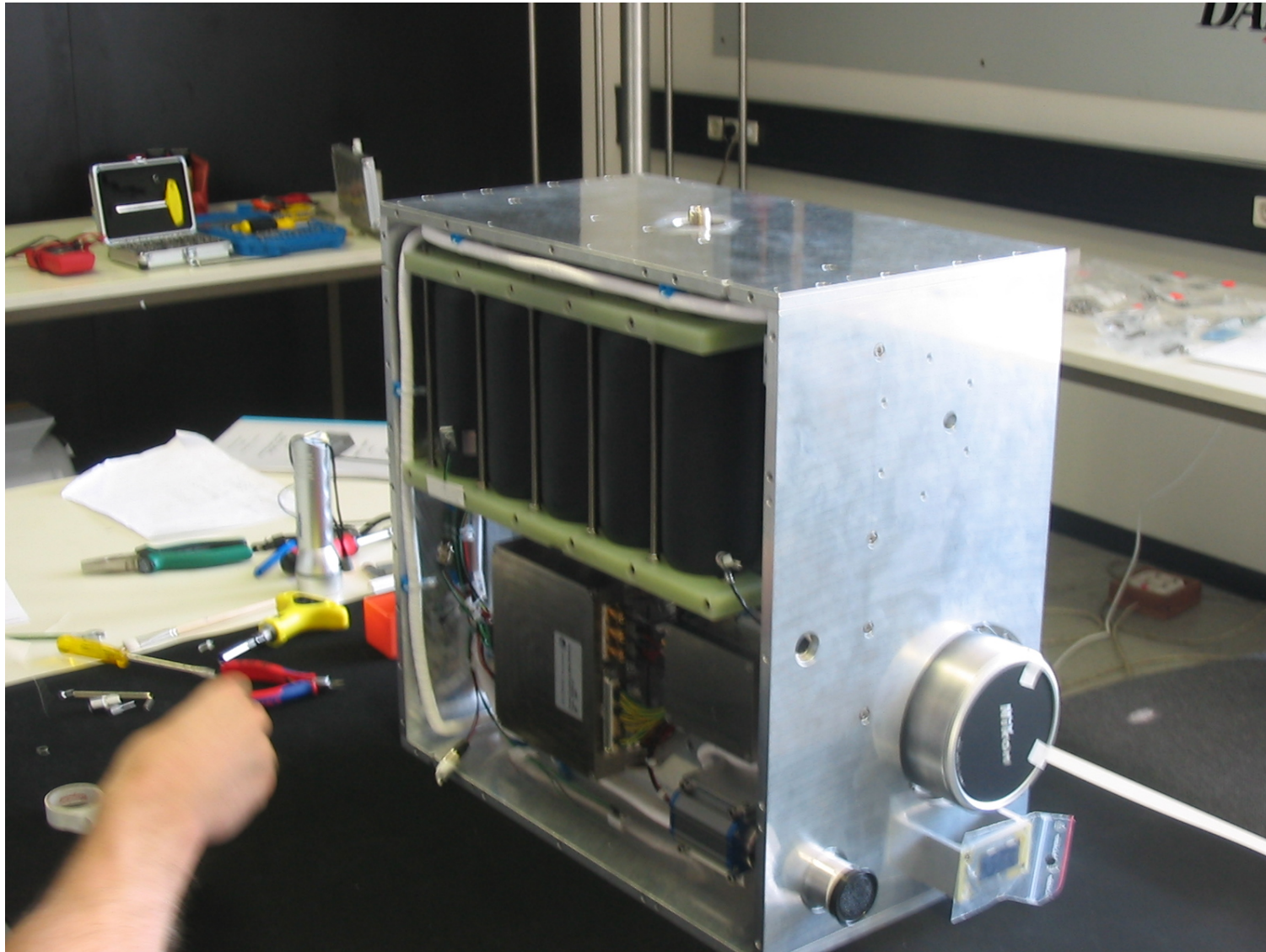
**56 kg**  
**45cm x 45cm x 27cm**

# Manufacture





# Manufacture



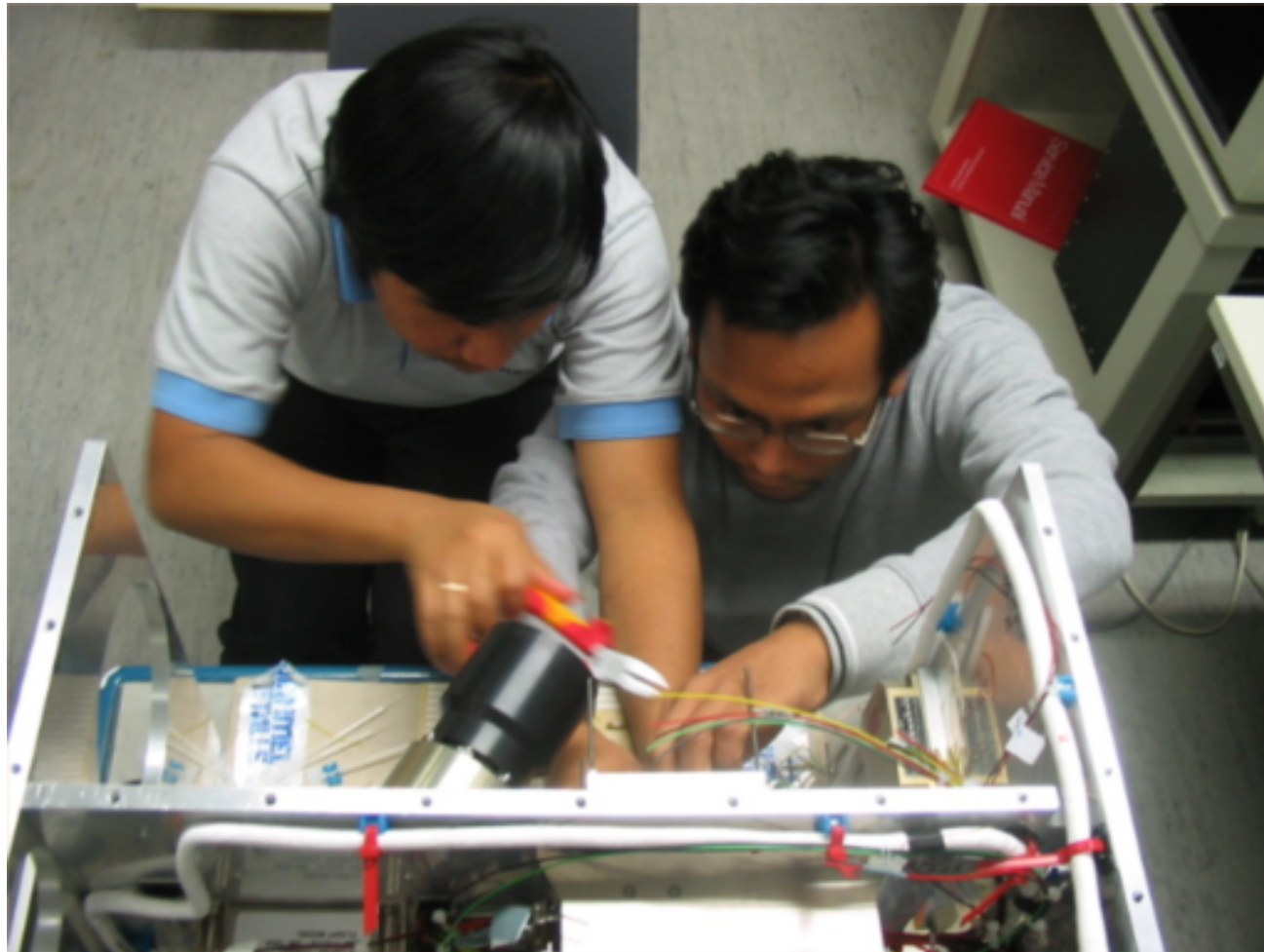
# Manufacture

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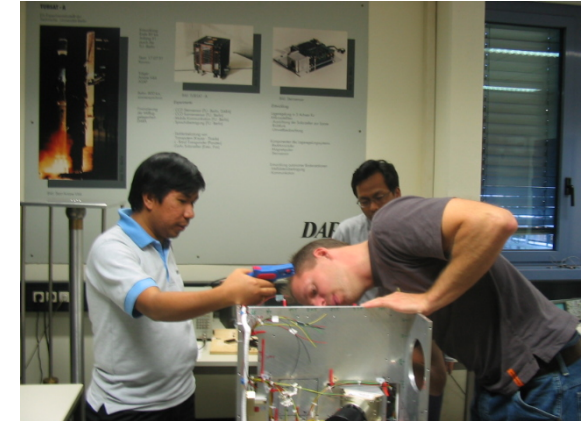
# Integration

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# Test





# Handover Ceremony



# Transportation to Launch Pad

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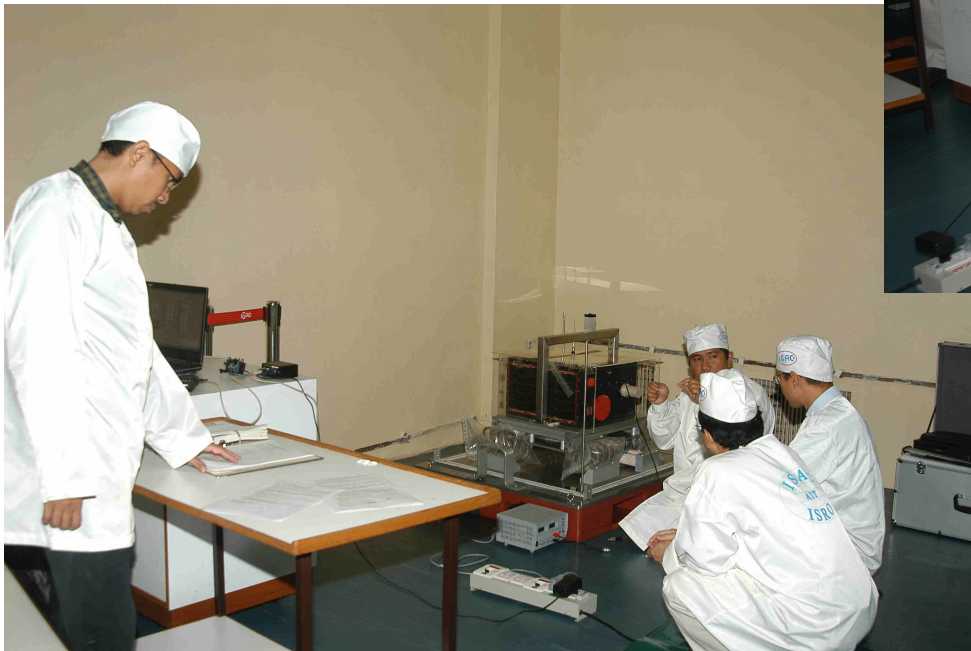
# Transportation to Launch Pad

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# Final Tests





# Ready for Launch

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# Integration on the Launcher



PSLV-C7

CARTOSAT-2

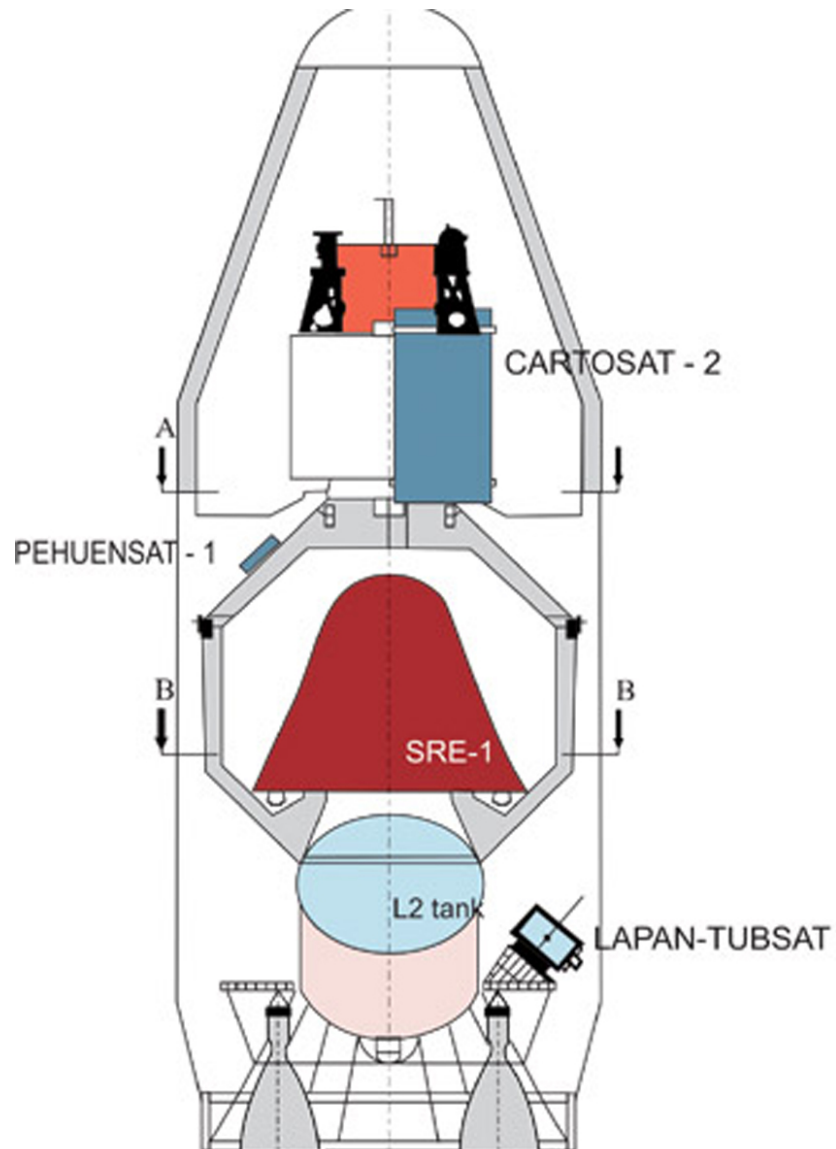
SRE-I

PEHUENSAT-1

LAPAN-TUBSAT



# Integration on the Launcher





# Launch with PSLV

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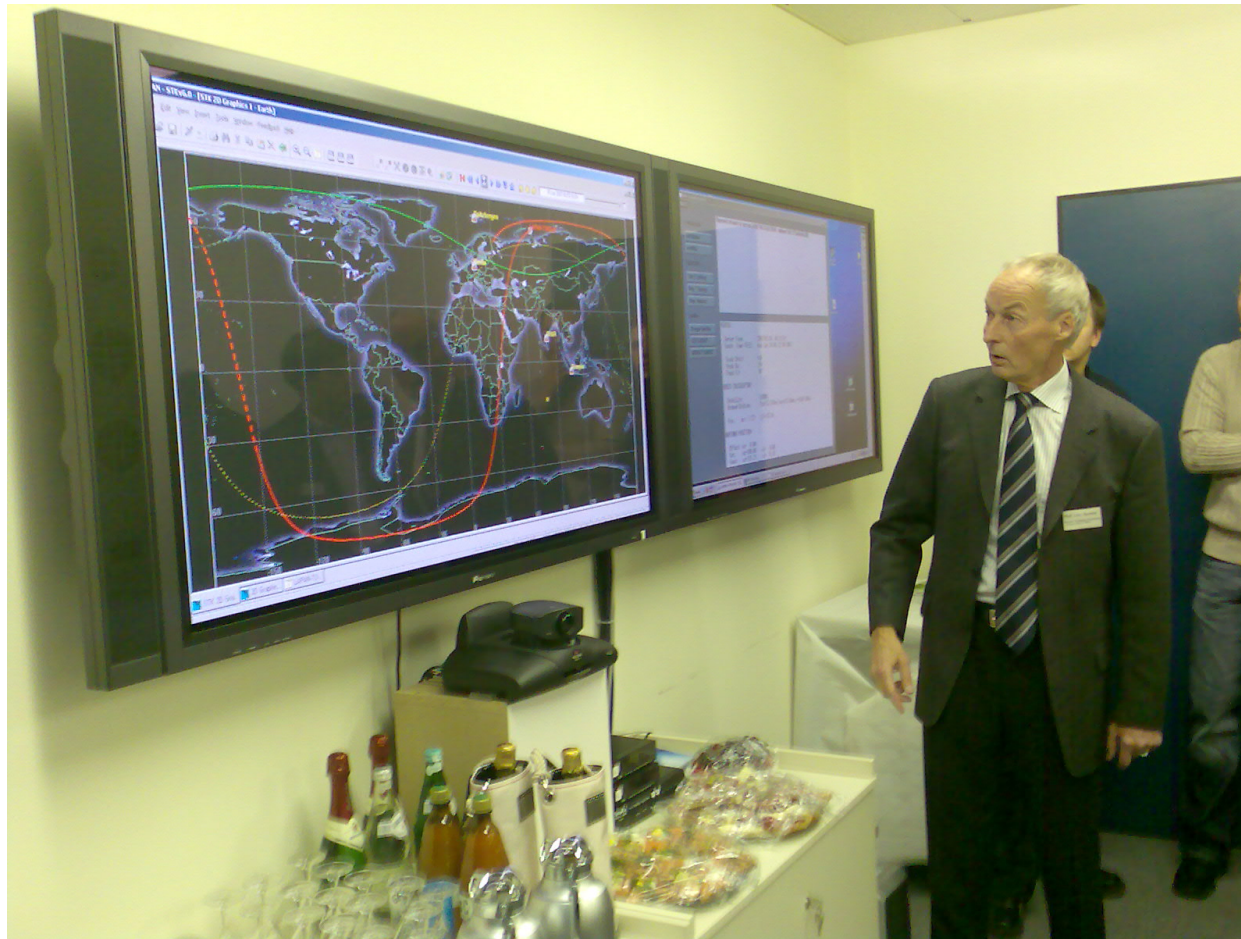






# Control Centre in Berlin

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# First Contact

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# First Contact

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# First Contact

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# Ground Station in Berlin

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# LAPAN Ground Station in Rumpin

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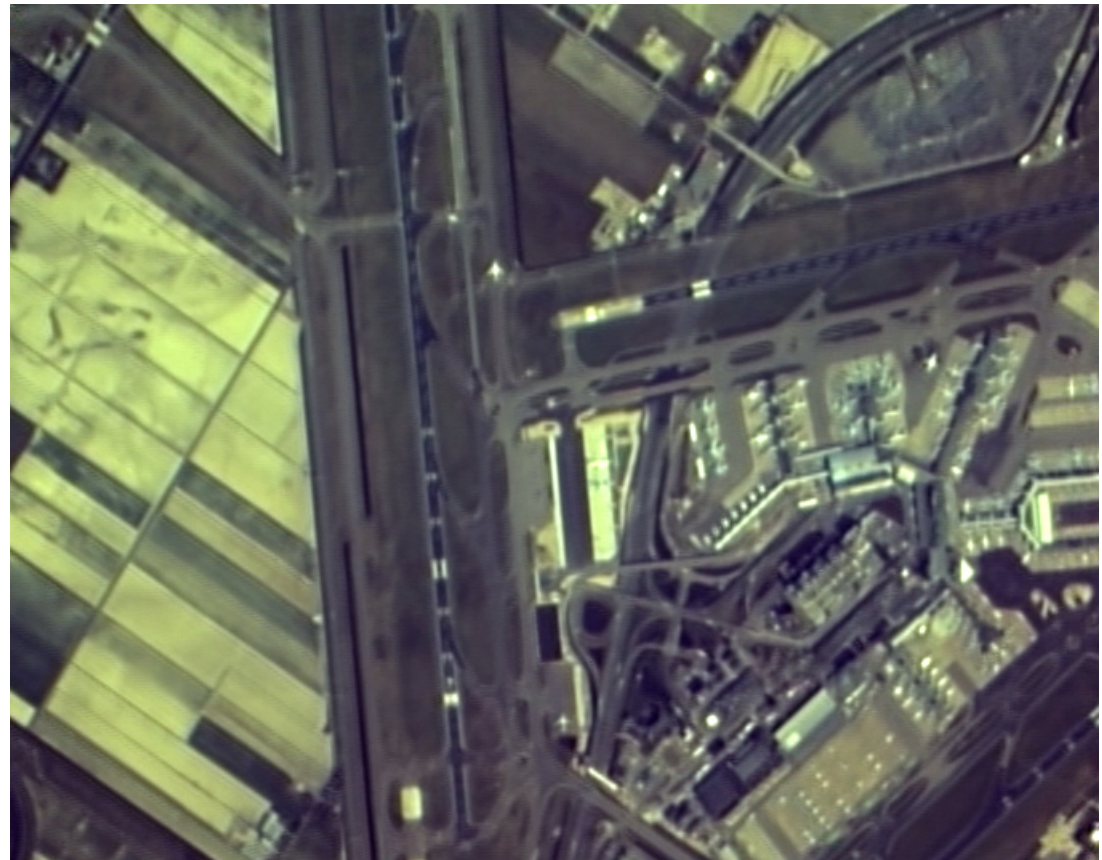






# Rapidly Moving Targets: Planes

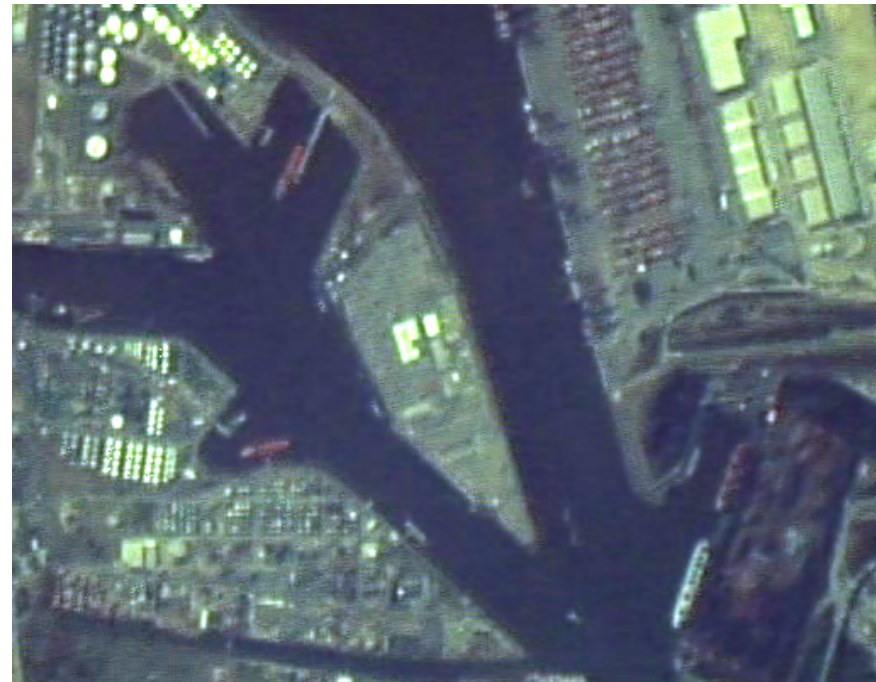
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# Rapidly Moving Targets: Boats

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# Fixed Targets: Fields

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# Fixed Targets: Forests

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# Fixed Targets: Reclamation of Ground

LAPAN-TUBSAT  
Video Surveillance

SINGAPORE  
Reclamation Project

Source:  
Google Map 2007

Source:  
LAPAN-TUBSAT, 19 June 2007



# Fixed Targets: Volcanoes

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# Fixed Targets: Water Surface

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# LAPAN-TUBSAT



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Technische Universität Berlin  
Marchstraße 12, D-10587 Berlin  
GERMANY

AIR MAIL / POS UDARA





# LAPAN-TUBSAT





# LAPAN-A2

