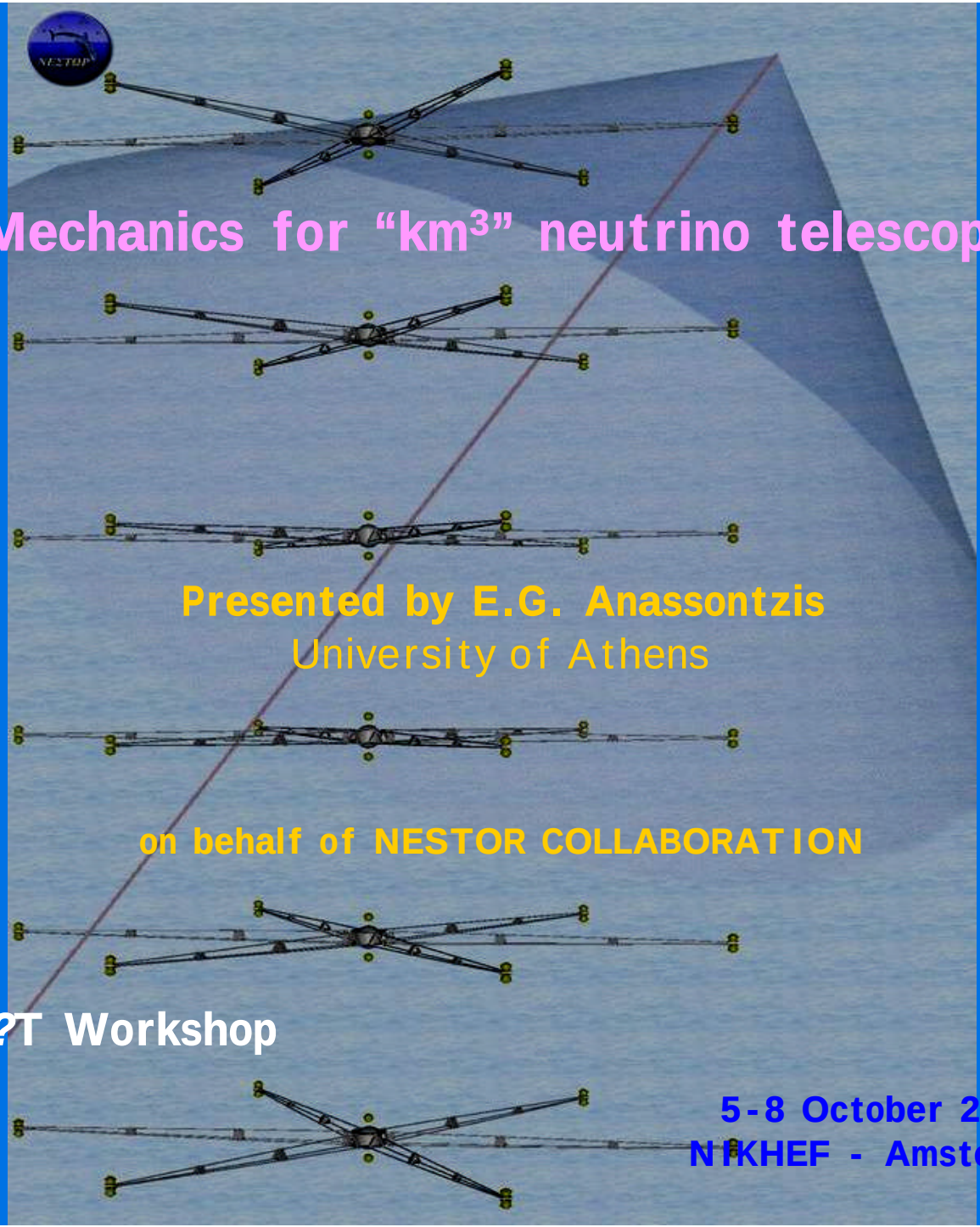


Mechanics for “km³” neutrino telescope

Presented by E.G. Anassontzis
University of Athens

on behalf of NESTOR COLLABORATION

VLV?T Workshop

5-8 October 2003
NIKHEF - Amsterdam

Design consideration

- **Modular system with built in redundancy**
- **“All” connections to be made in air**
- **Use ships of opportunity and non highly specialized surface vessels for deployment**
- **Use locally available transport vessels**
- **No use of bathyscaphs or ROVs**
- **Retrieval and expandable**
- **Inoxidable material**

- **Inoxidable material**

• **Stainless steel >** inoxidable > many alloys > sensitive in cavity corrosion > steel ropes and shackles

• **Aluminium** > special alloy > anodized

• **Titanium**

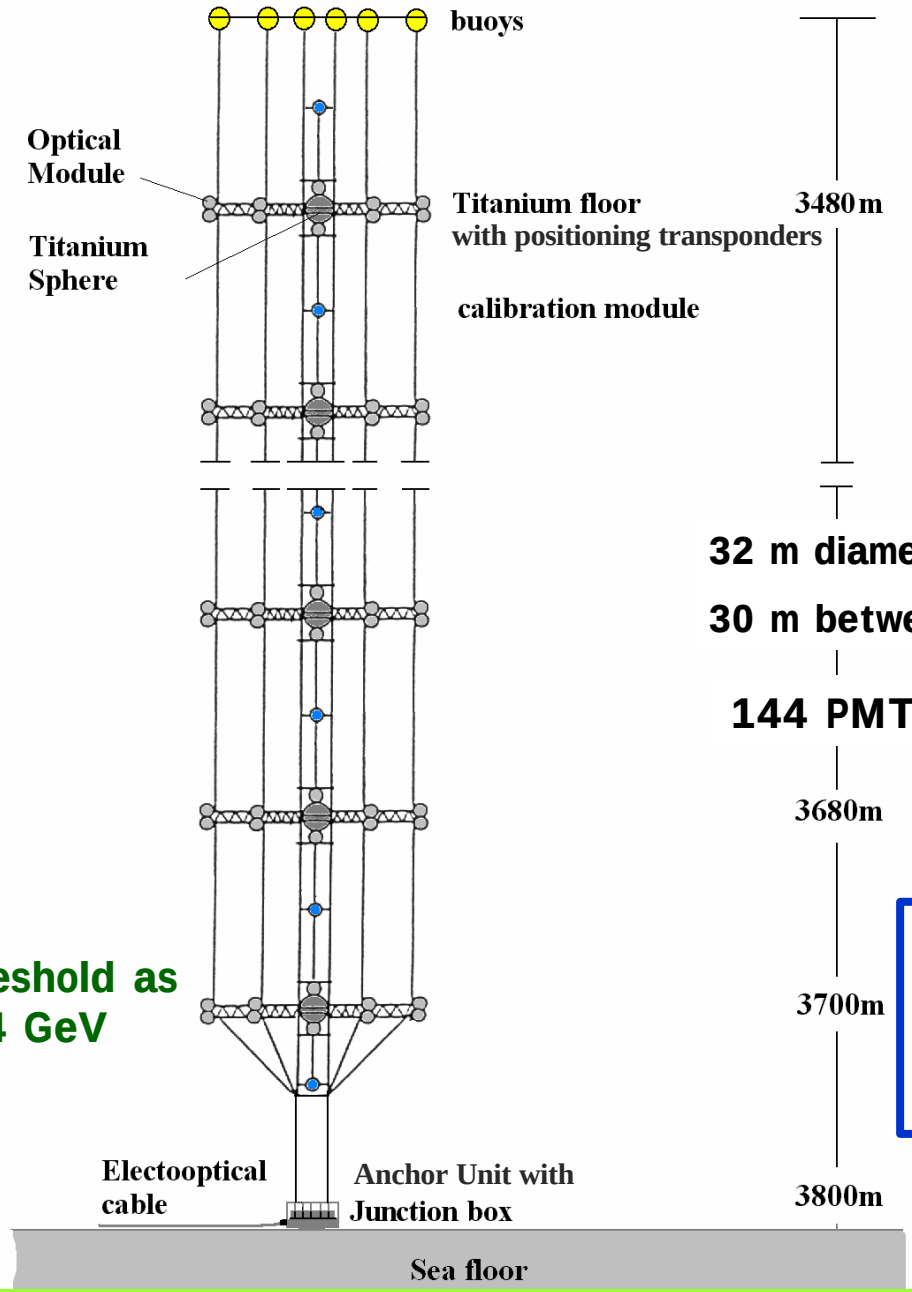
• **Plastics** > PVC, Polyethylene > ropes

• **Glass fibers** > light and strong > water ingress?

• **Glass** > PMT > housing > inoxidable

- **Isolation with plastic or rubber**

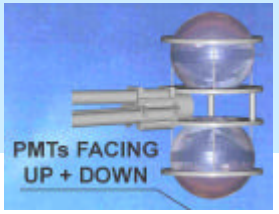
NESTOR tower

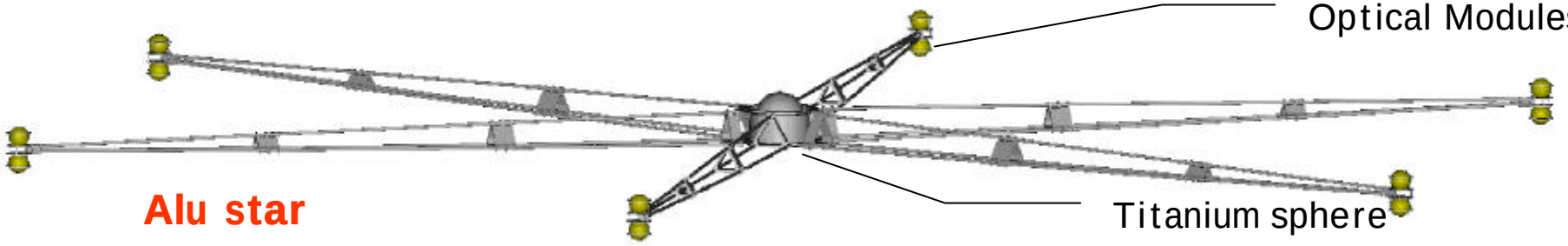


Energy threshold as low as 4 GeV

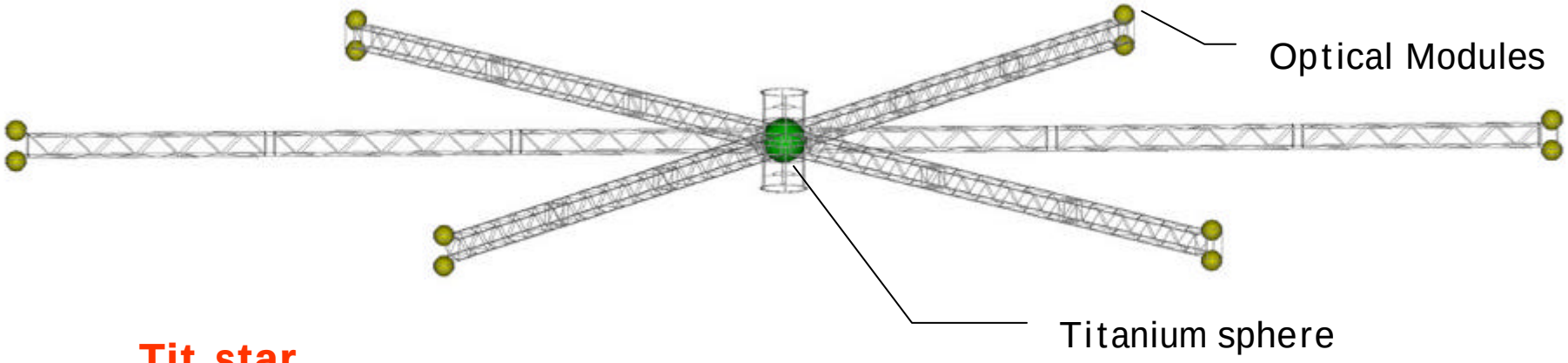
20 000 m^2 Effective Area for E>10TeV

NESTOR star





Alu star

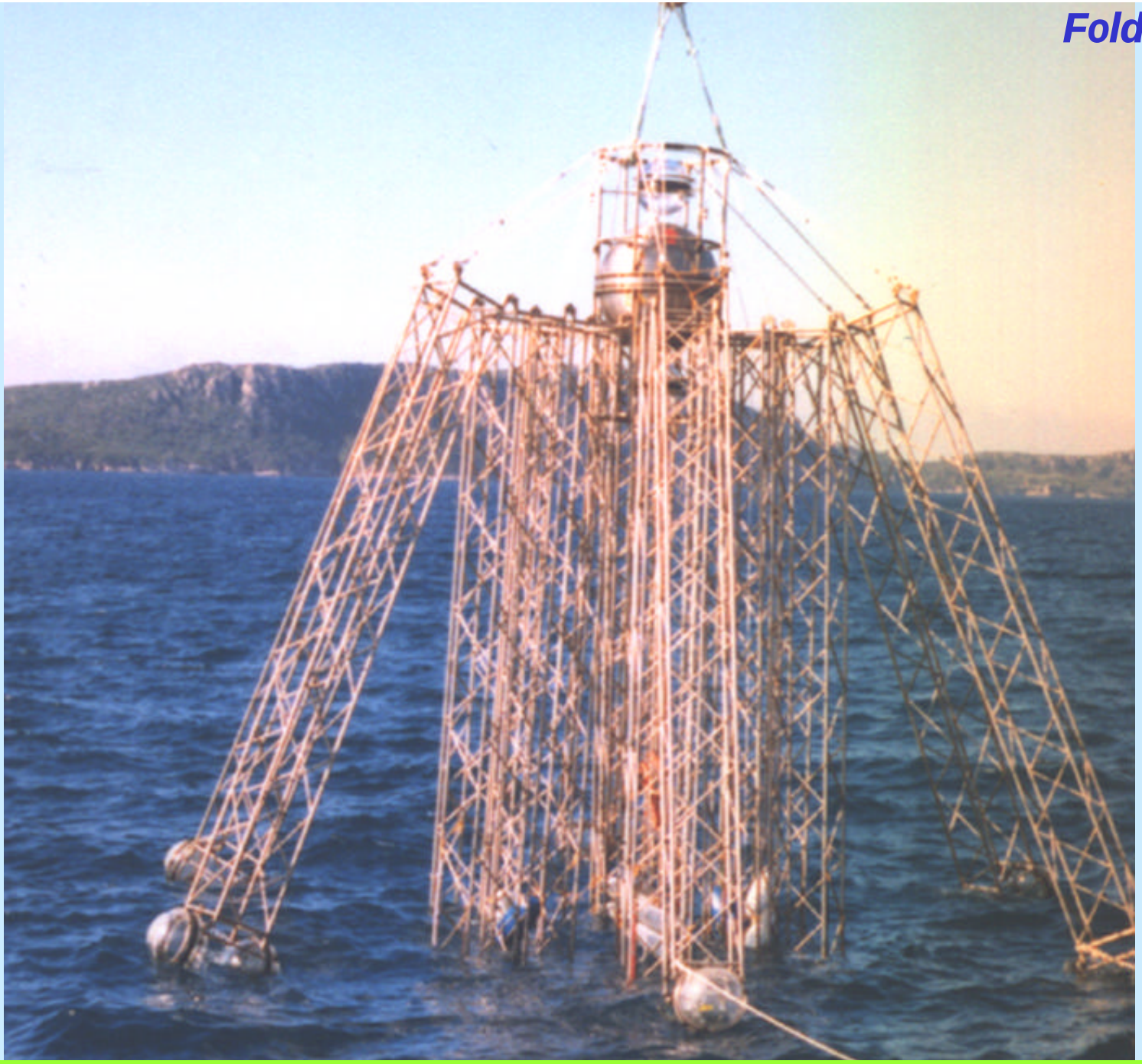


Tit star

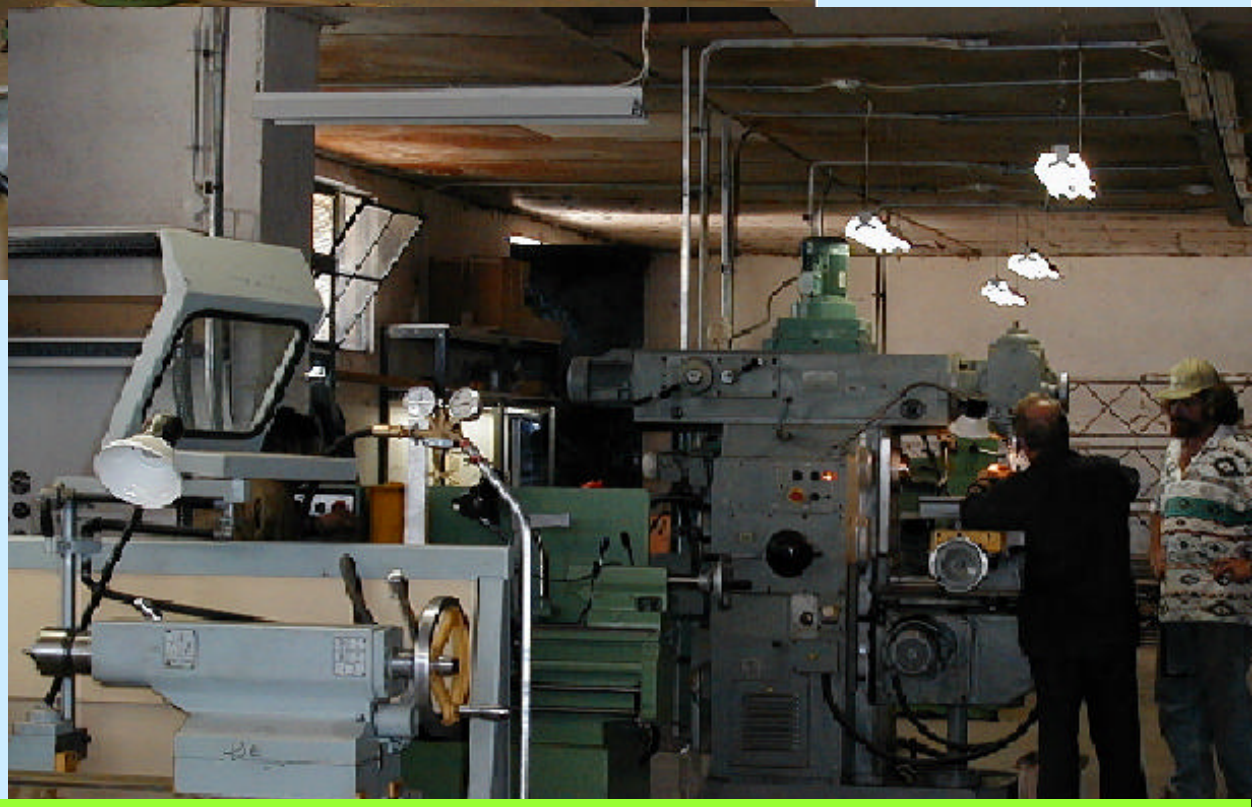

Loading a star

Preparing a star

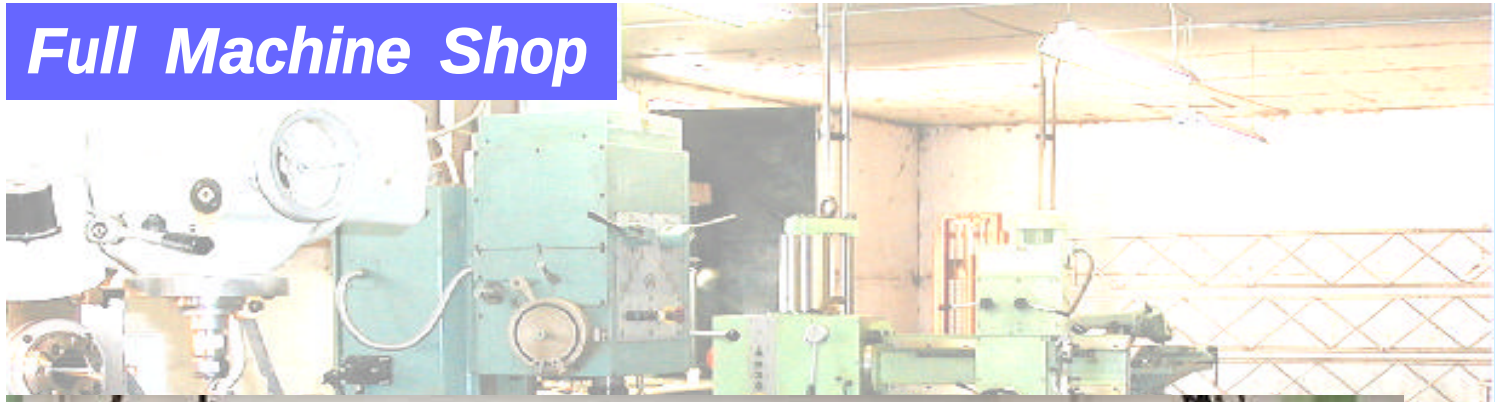
Folded star



Full Machine Shop

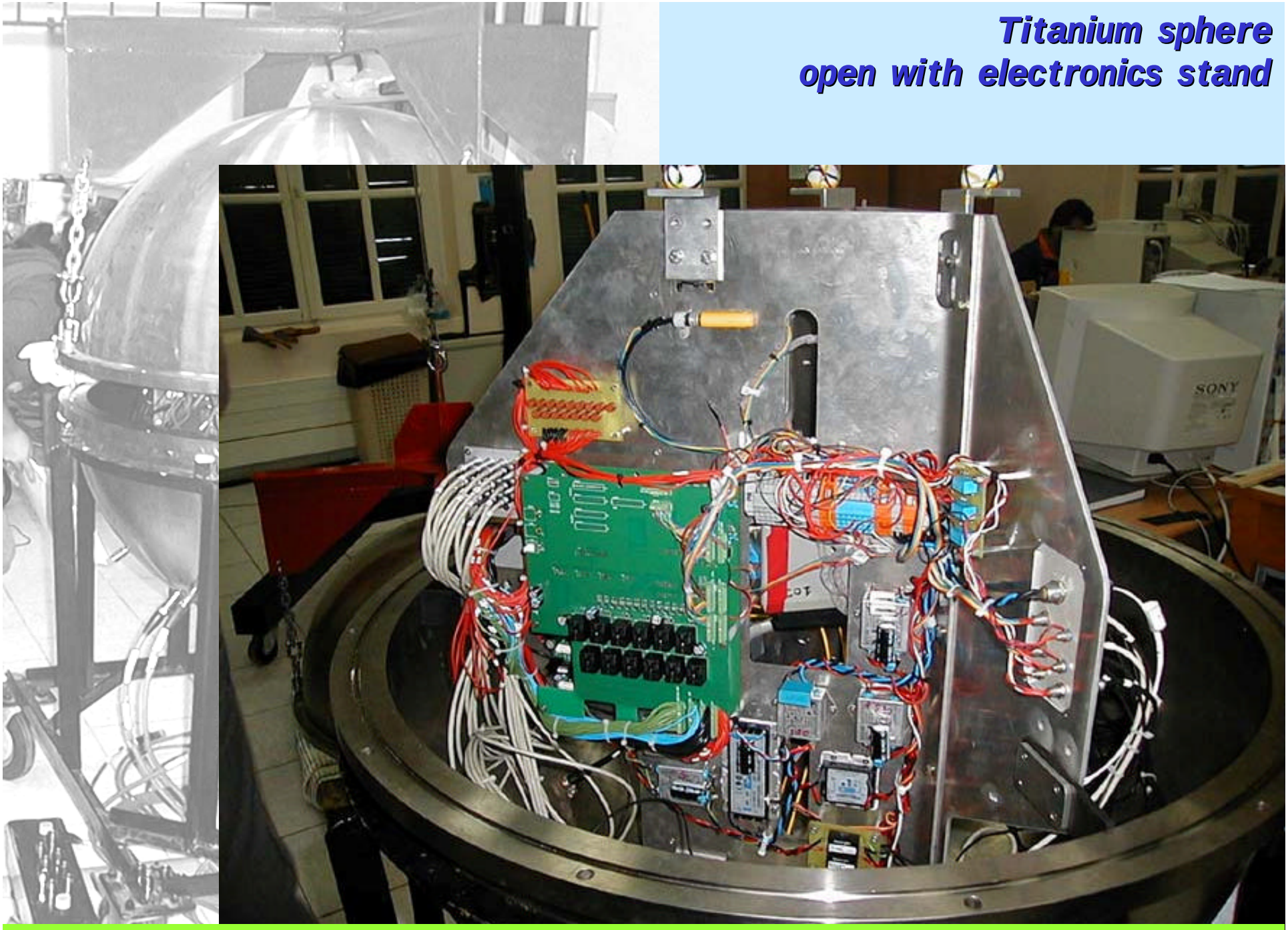


Full Machine Shop

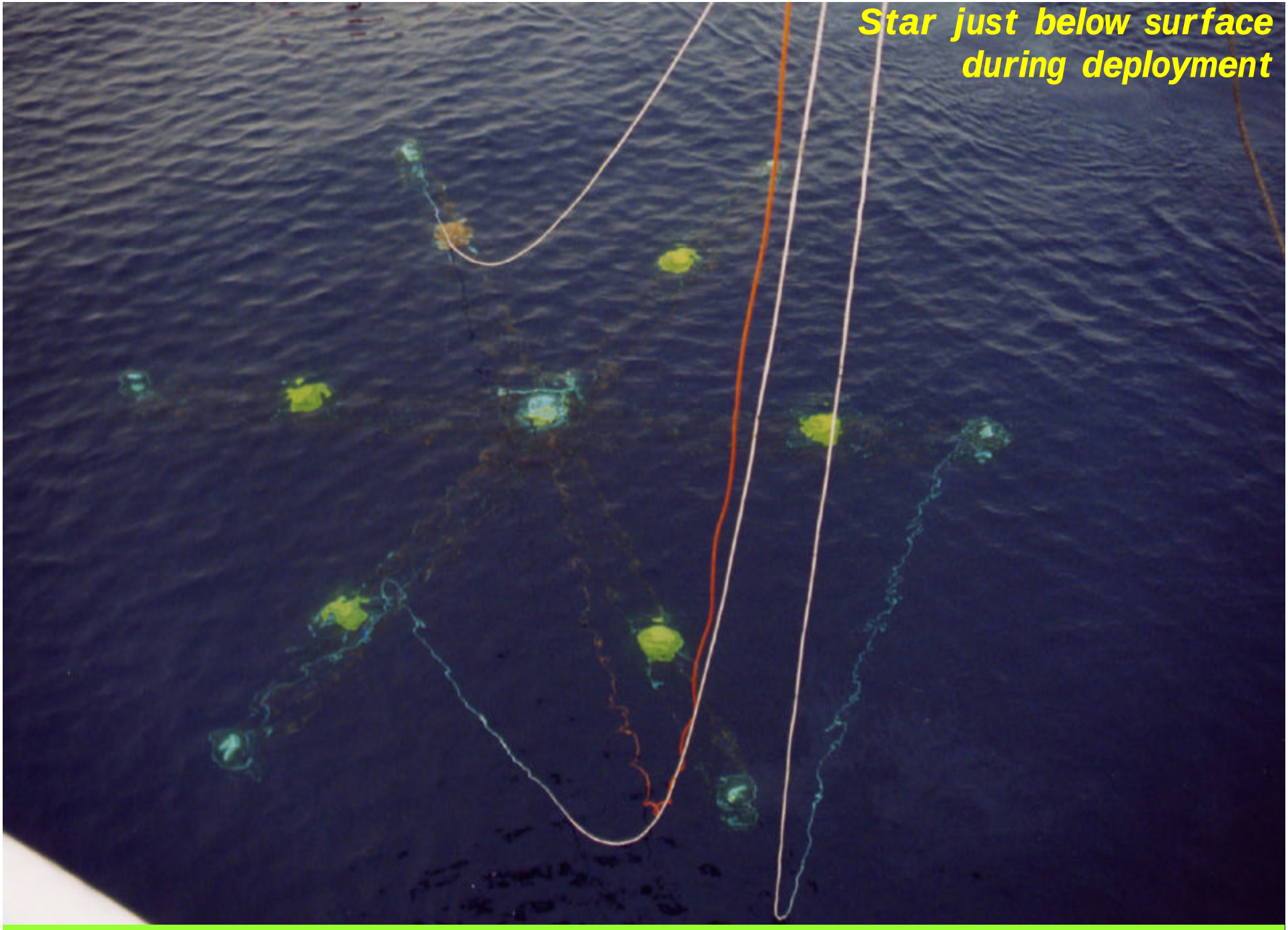


Titanium sphere

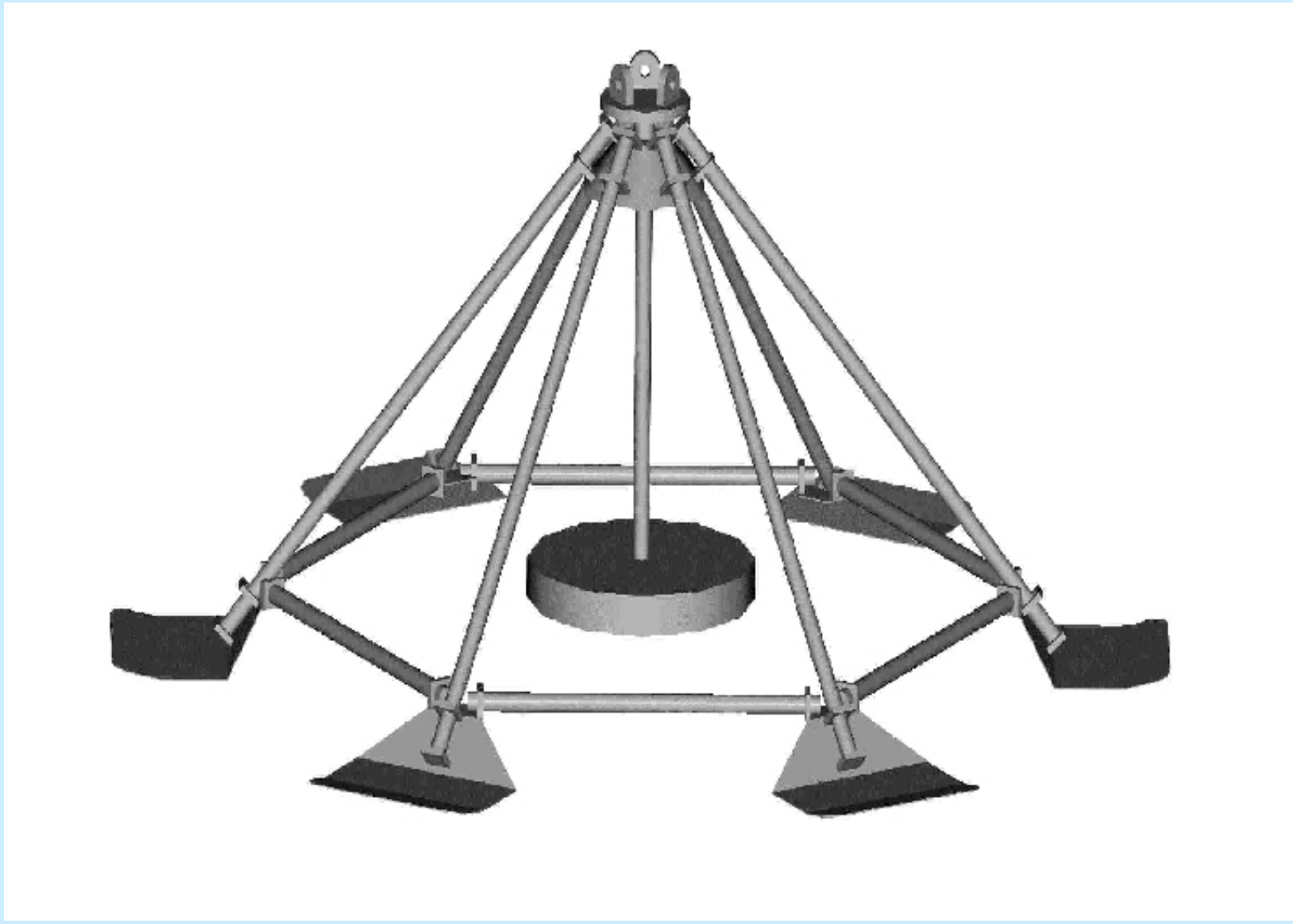
Titanium sphere open with electronics stand



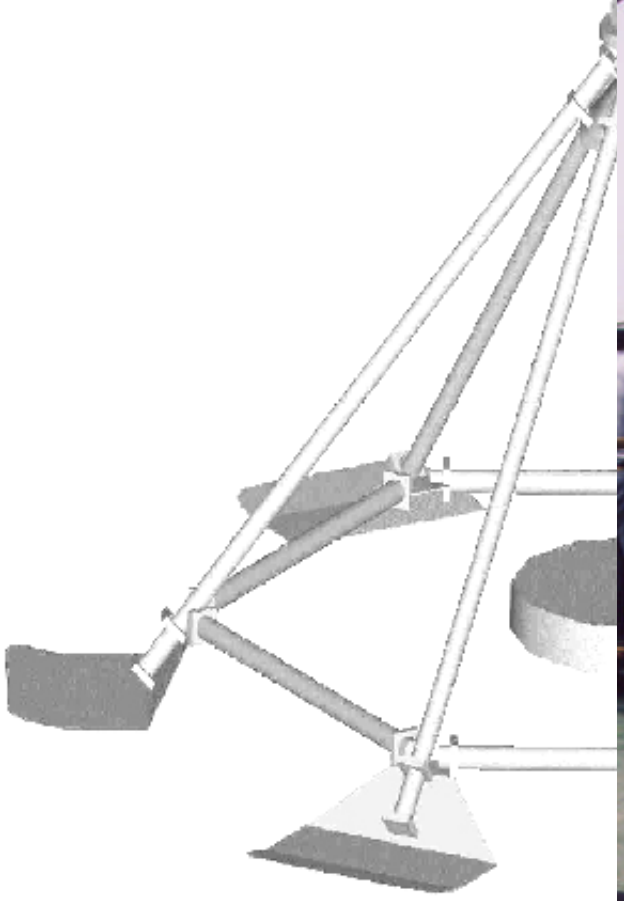
Star just below surface during tests

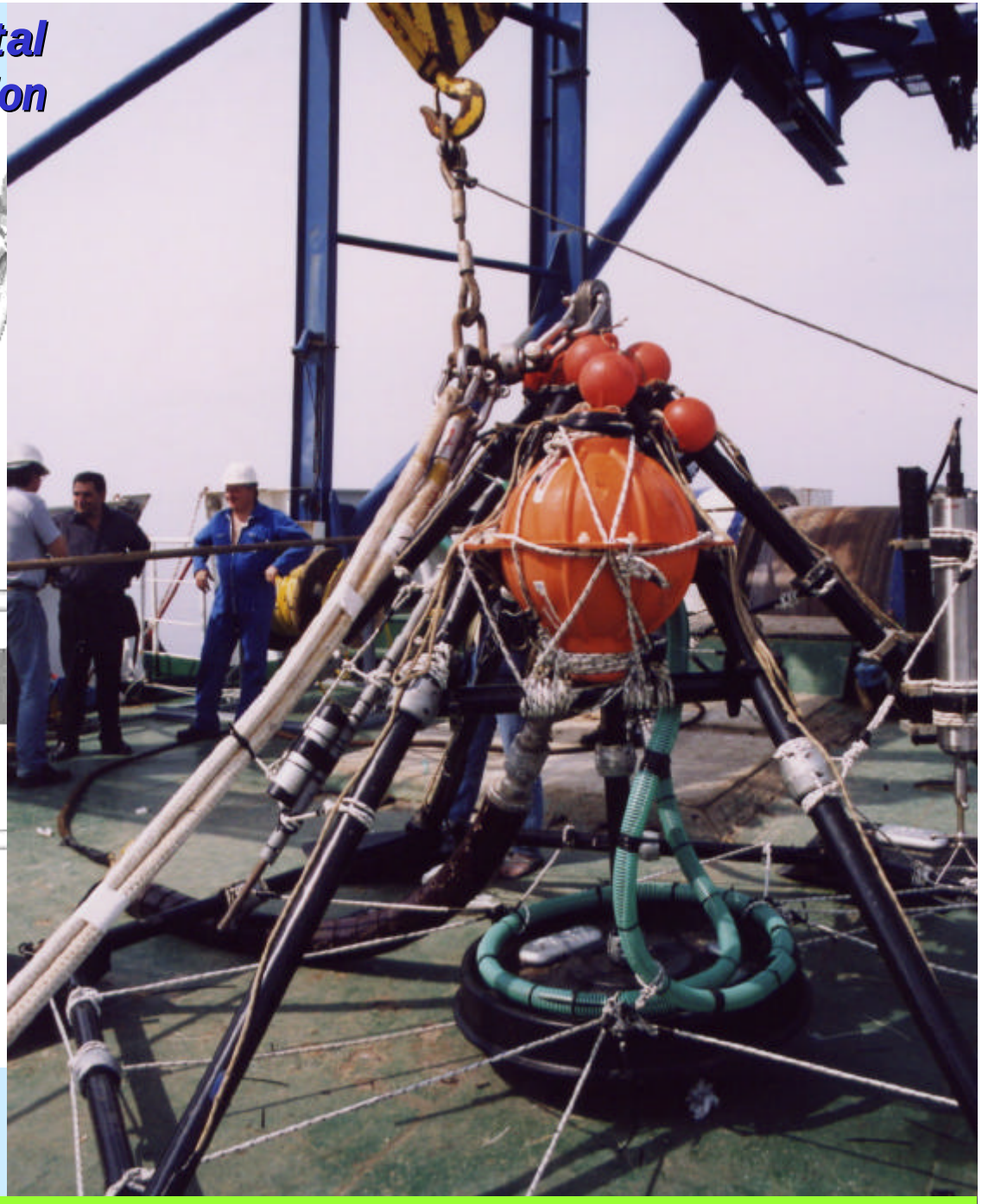

Star just below surface
during deployment

Anchor Unit with Environmental Instrumentation

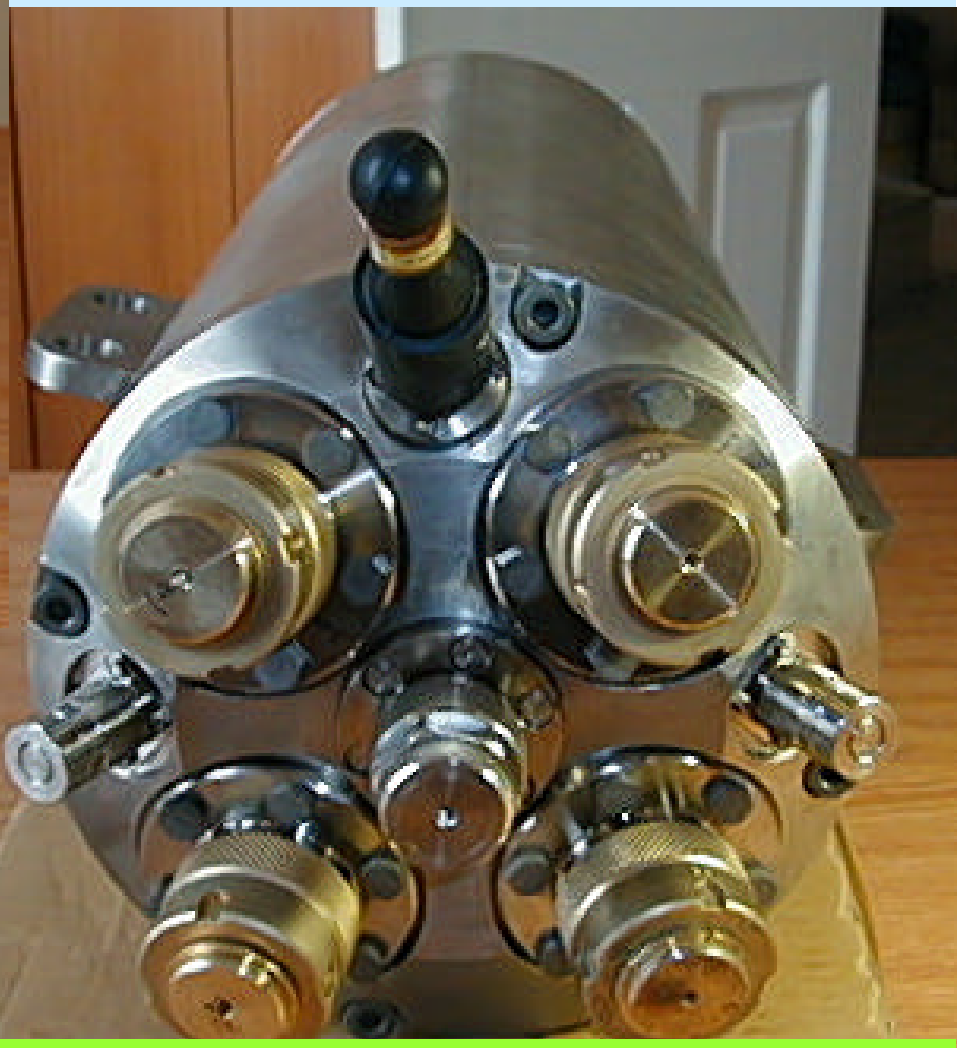


Anchor Unit with Environmental Instrumentation

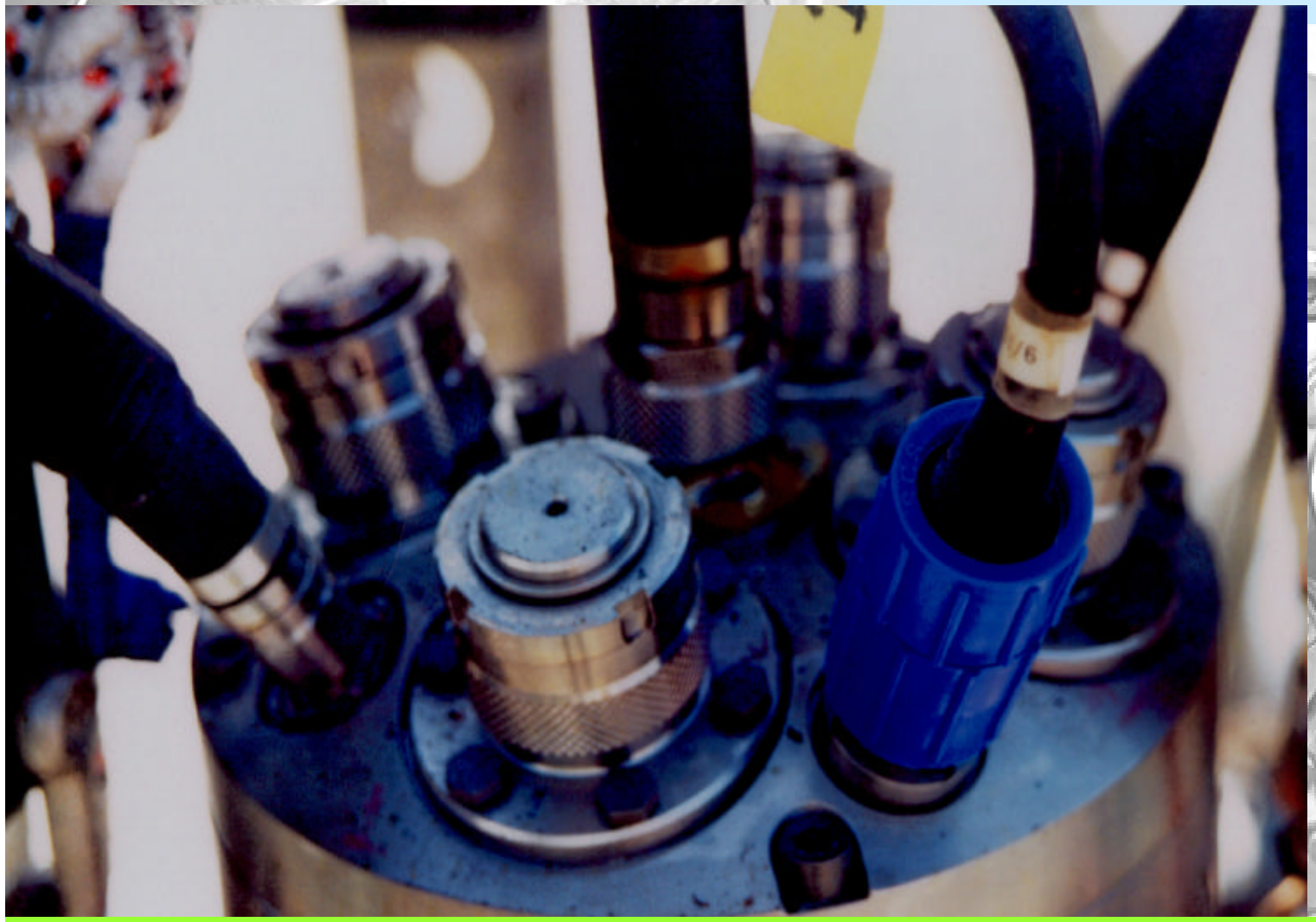




Junction box, connectors sides

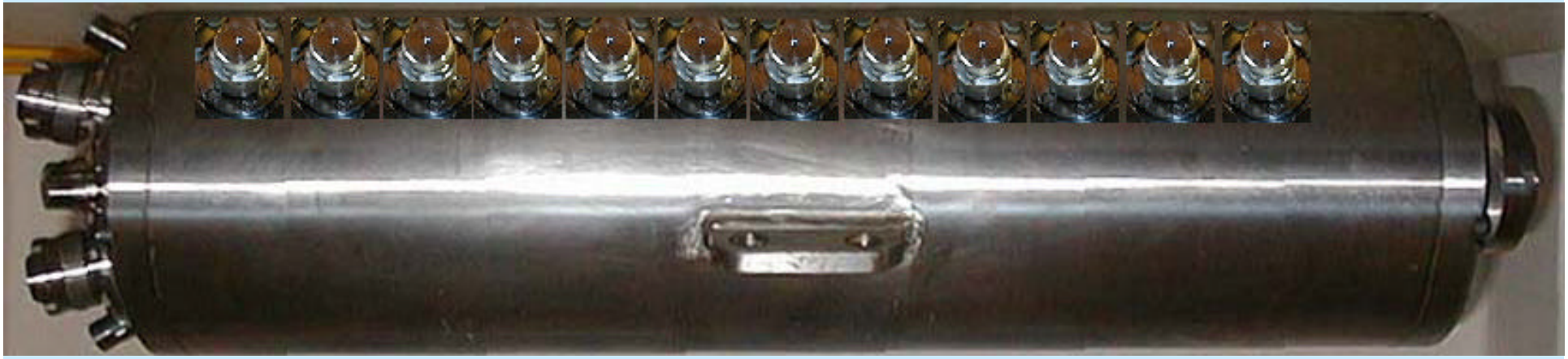


Junction box, connectors sides



JB box

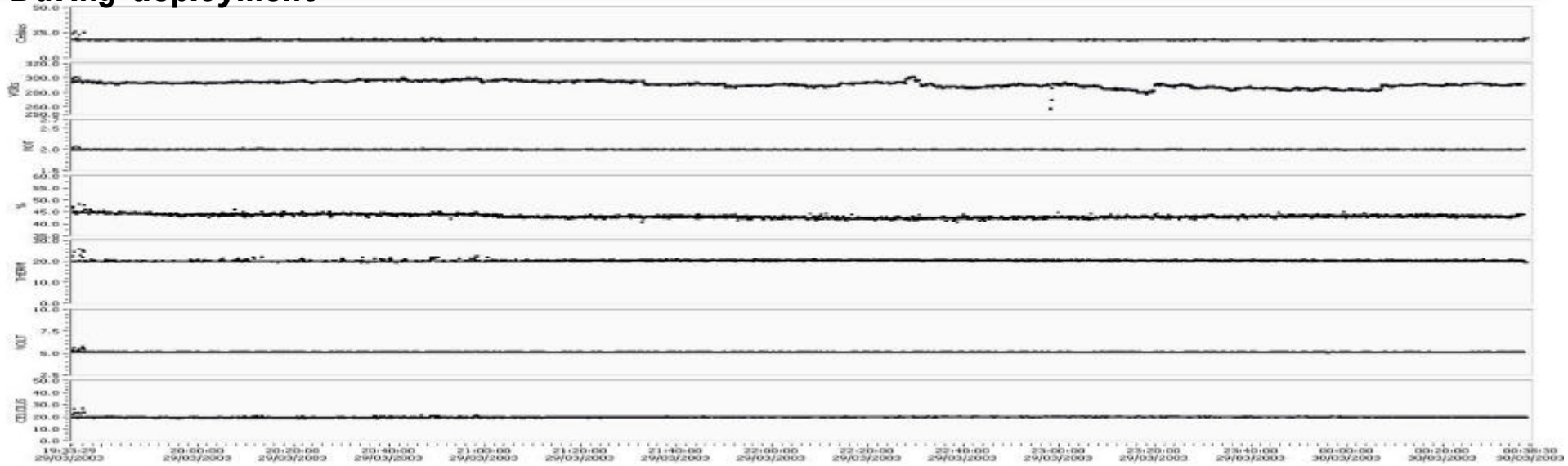
JB box with connectors on the side (simulation)



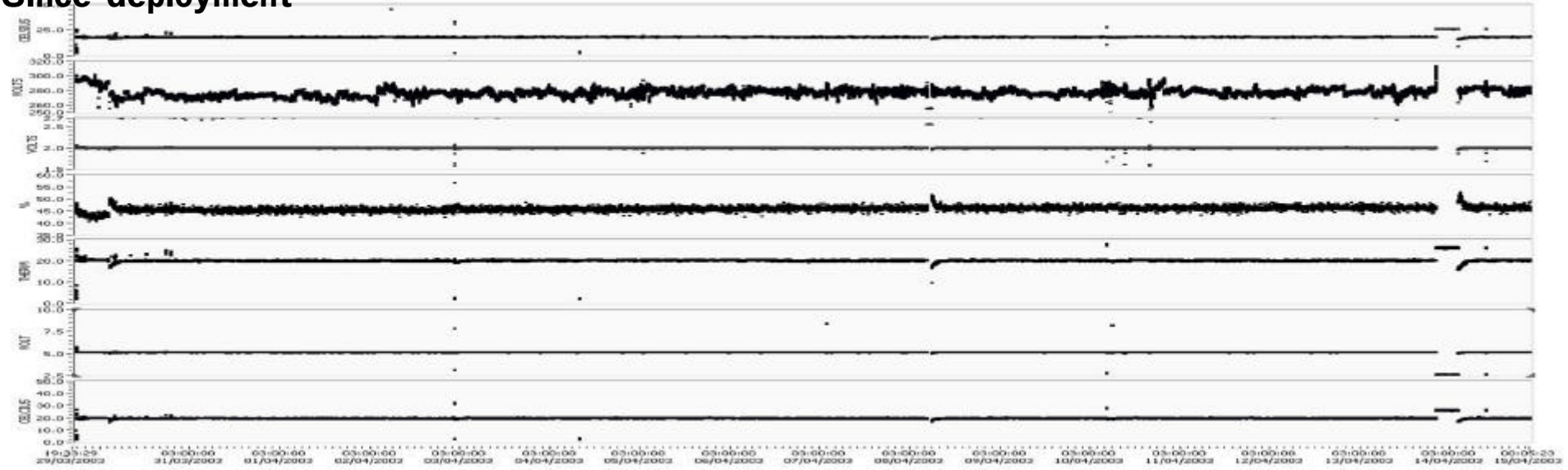
Data from a depth of 4000 m

Environmental data from the Junction Box

During deployment



Since deployment

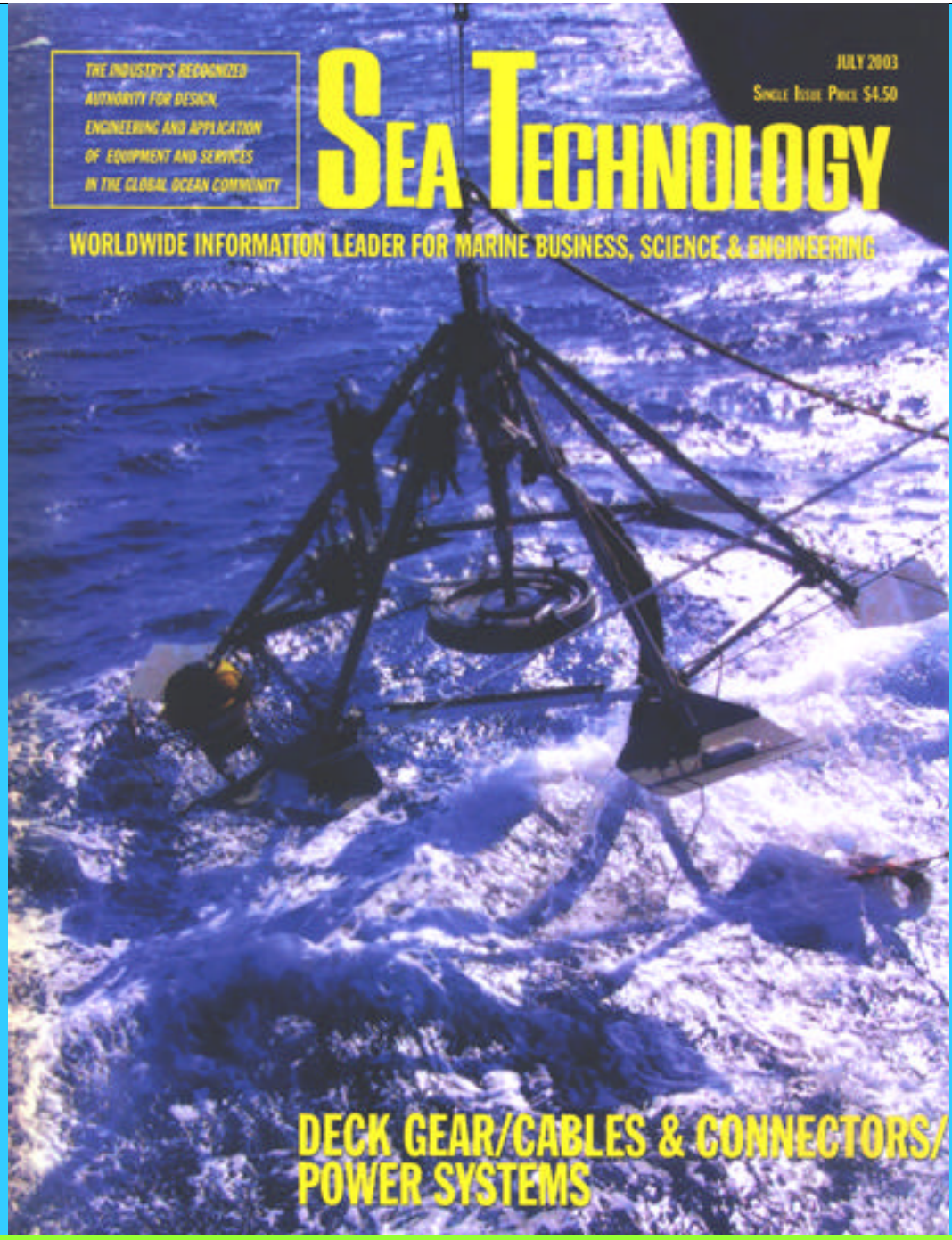


Successful deployment of one NESTOR star with 12 Optical Modules to 4000m

using the

cableship RAYMOND CROZE (FranceTelecom)

30th of March: The first deep sea muon data transmitted to shore; through a 30km long electro-optical cable to the Methoni counting room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