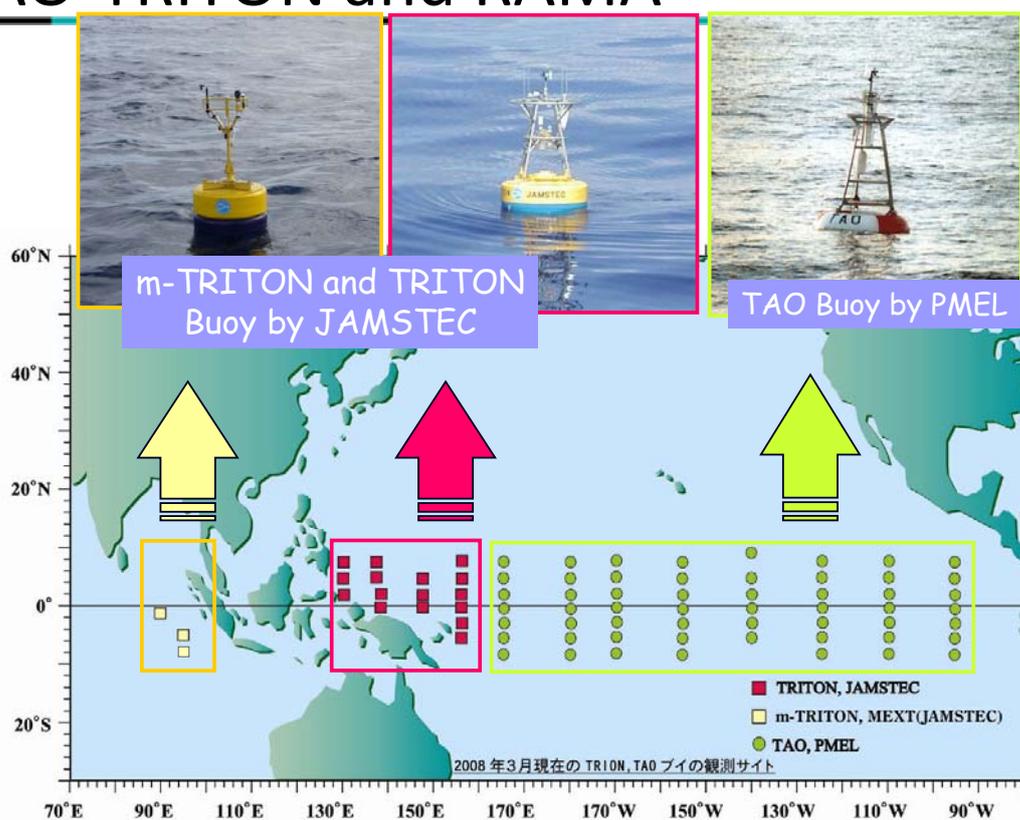


m-TRITON and TRITON buoy system

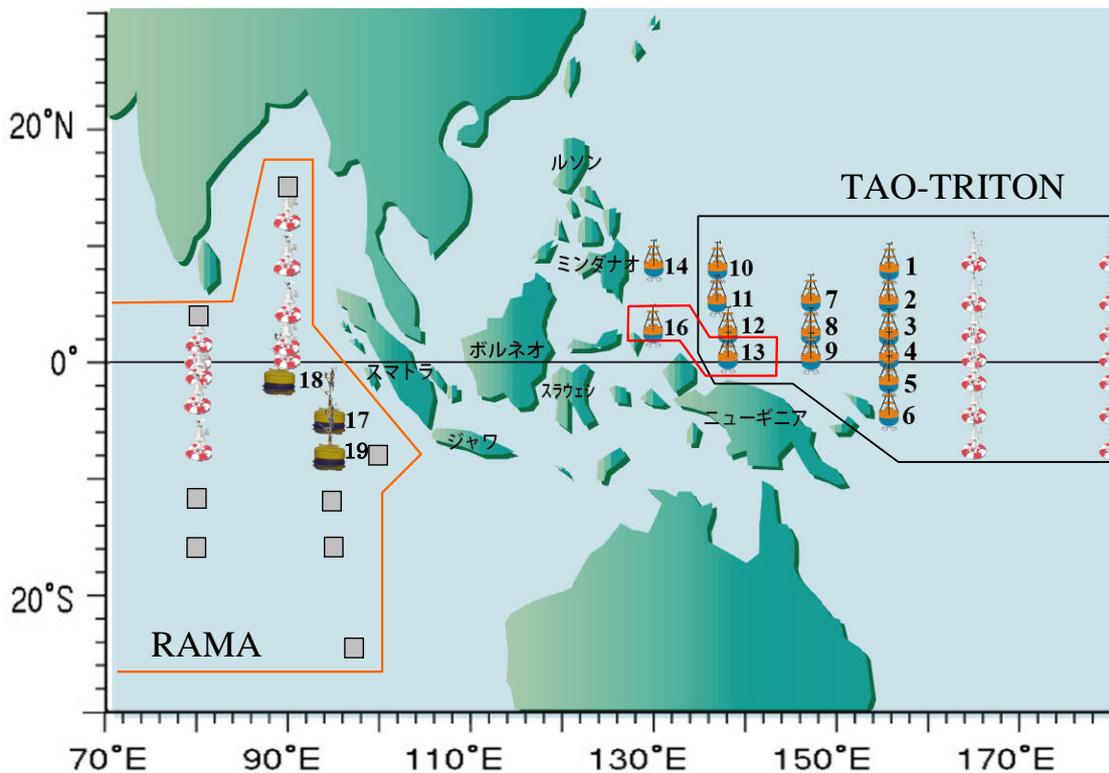
**Yasuhisa Ishihara, Masayuki Yamaguchi,
Tatsuya Fukuda, Hiroshi Matsunaga and Takashi
Murashima**
**Japan Agency for Marine-Earth Science and
Technology (JAMSTEC)**

JAMSTEC

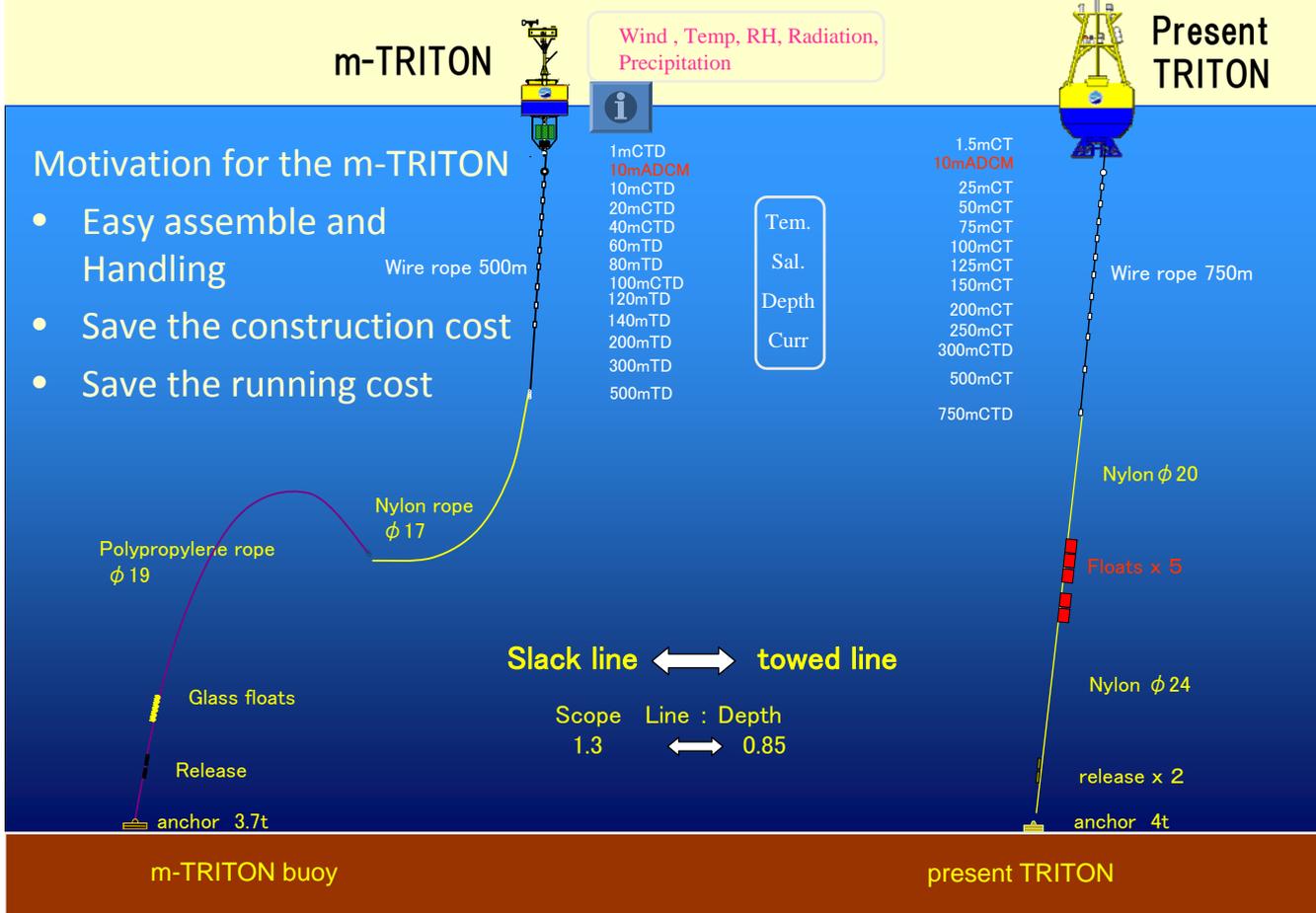
International surface buoy Array TAO-TRITON and RAMA



JAMSTEC International surface buoy Array, TRITON and RAMA



JAMSTEC TRITON buoy sys.



TRITON buoy system

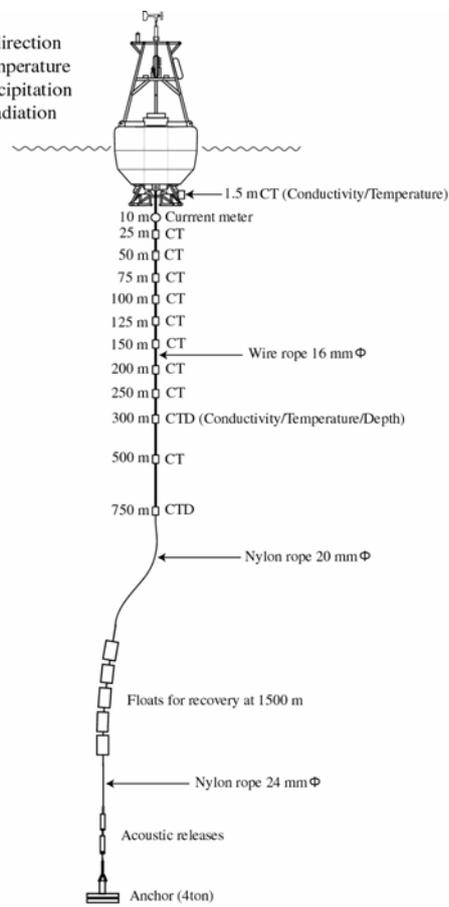


JAMSTEC

The configuration of the TRITON mooring system



wind speed/direction
humidity, temperature
pressure, precipitation
short wave radiation

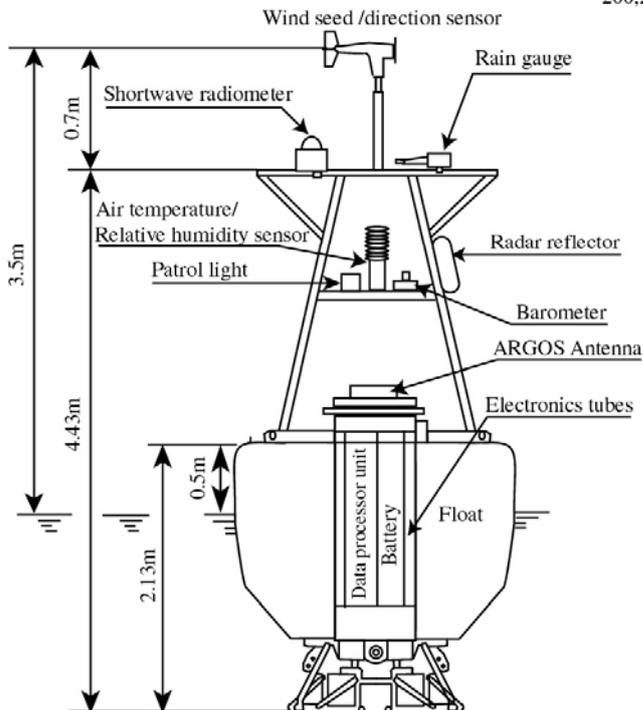
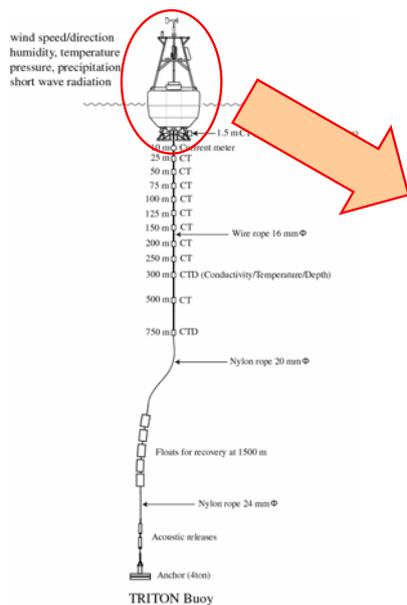


TRITON Buoy

The configuration of the TRITON surface float

Dimensions
 Diameter about 2.4m
 Weight about 2.4tf
 Displacement about 5.7tf

Measure items
 Wind speed /direction
 Air temperature, Relative humidity, Barometric pressure
 Precipitation
 Shortwave radiation
 Current speed /direction (10m)
 Water temperature & Salinity
 (1.5,25,50,75,100,125,150, 200,250,300,500,750m)



m-TRITON buoy system

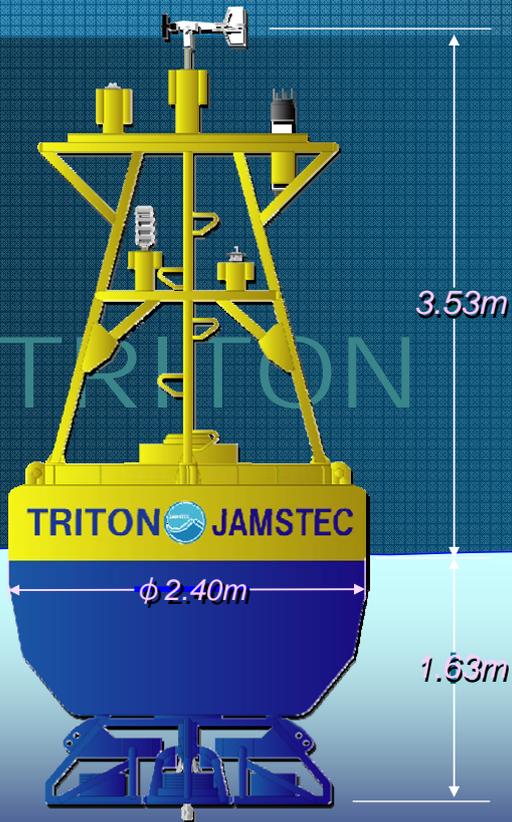


TRITON

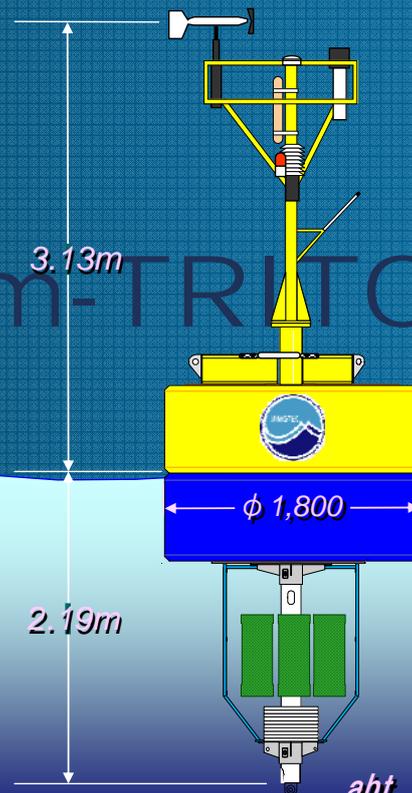
m-TRITON



Surface Buoy Dimension



Weight in air : *abt. 2,400kg*



abt. 800kg

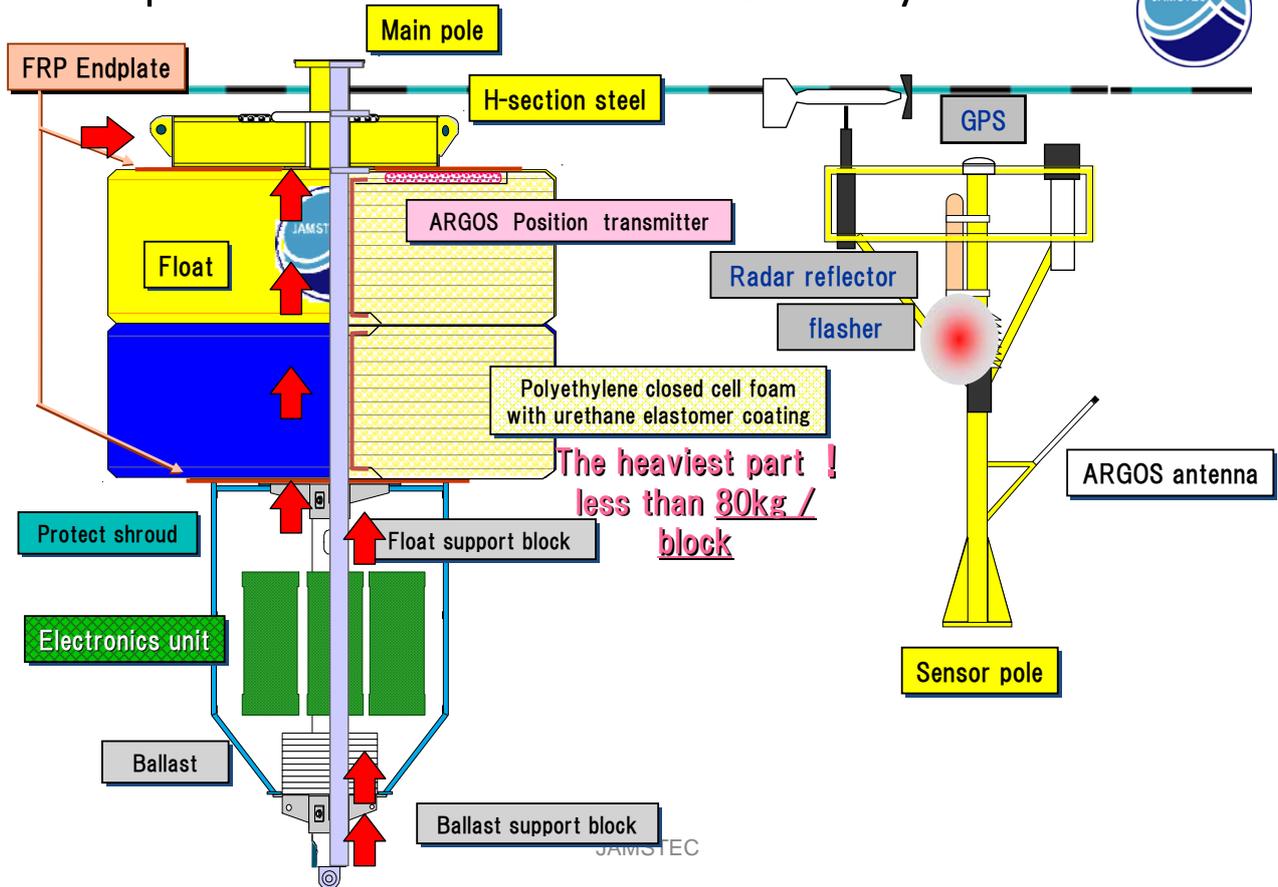
This is the m-TRITON !



Easy assemble and handling



Component formation of m-TRITON buoy



Assembling Procedure



Assembly platform





Assembling Platform / Carriage



Lift Support

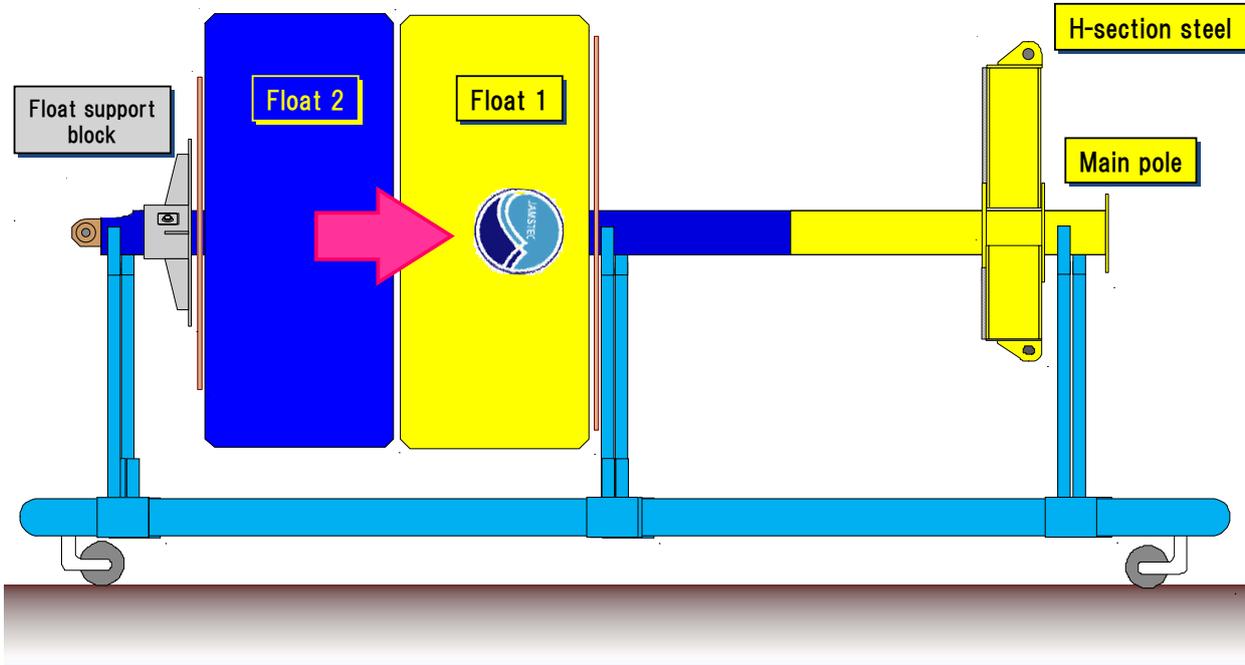


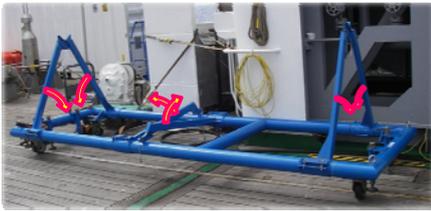
Procedure of m-TRITON Buoy (1)



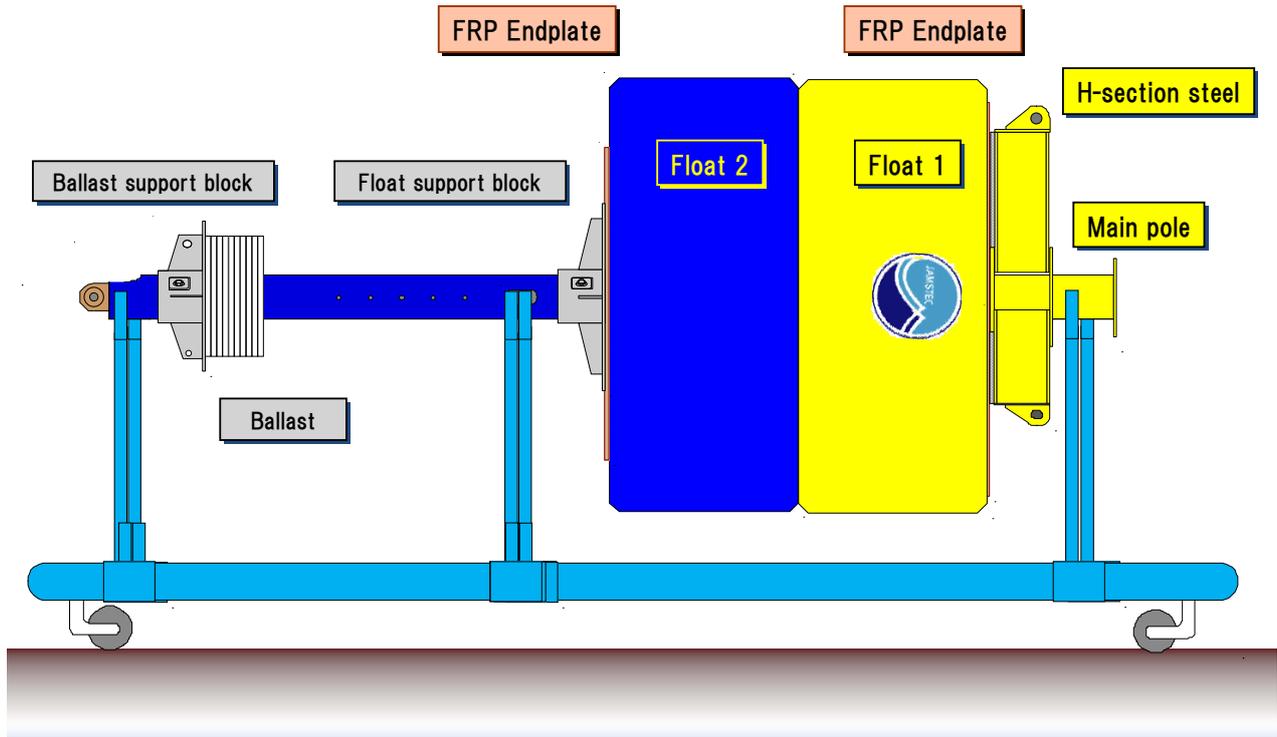
FRP Endplate

FRP Endplate

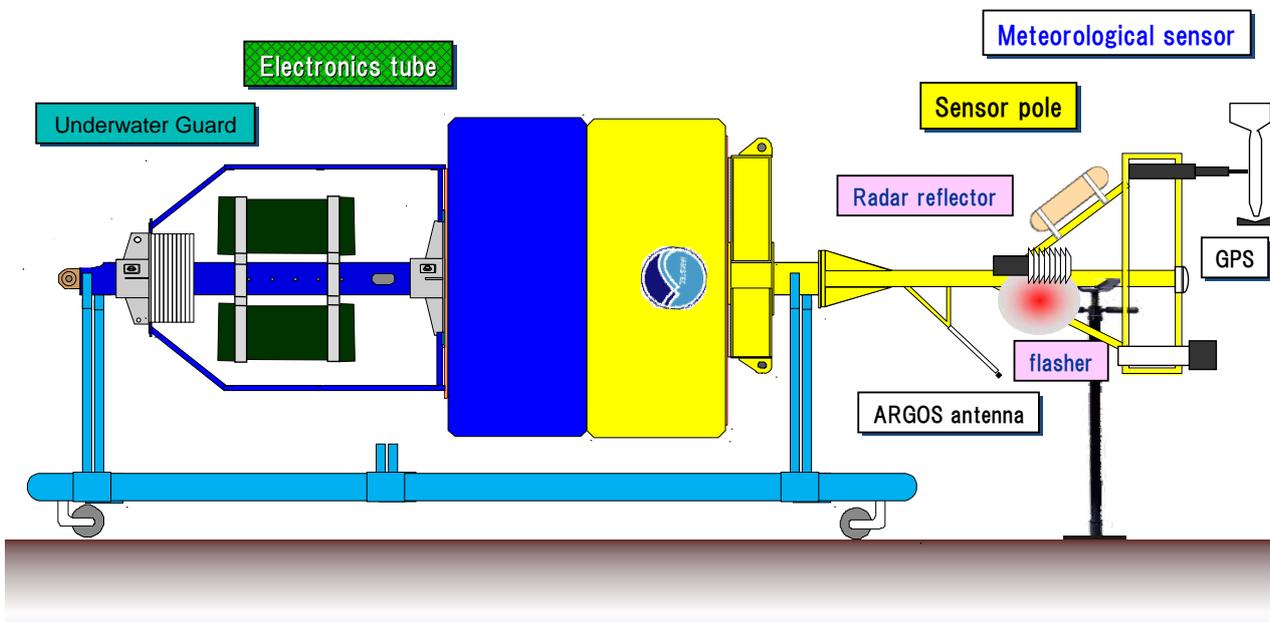




Procedure of m-TRITON Buoy (2)



Assembling Procedure of the m-TRITON Buoy (3)



m-TRITON Buoy ready to deploy



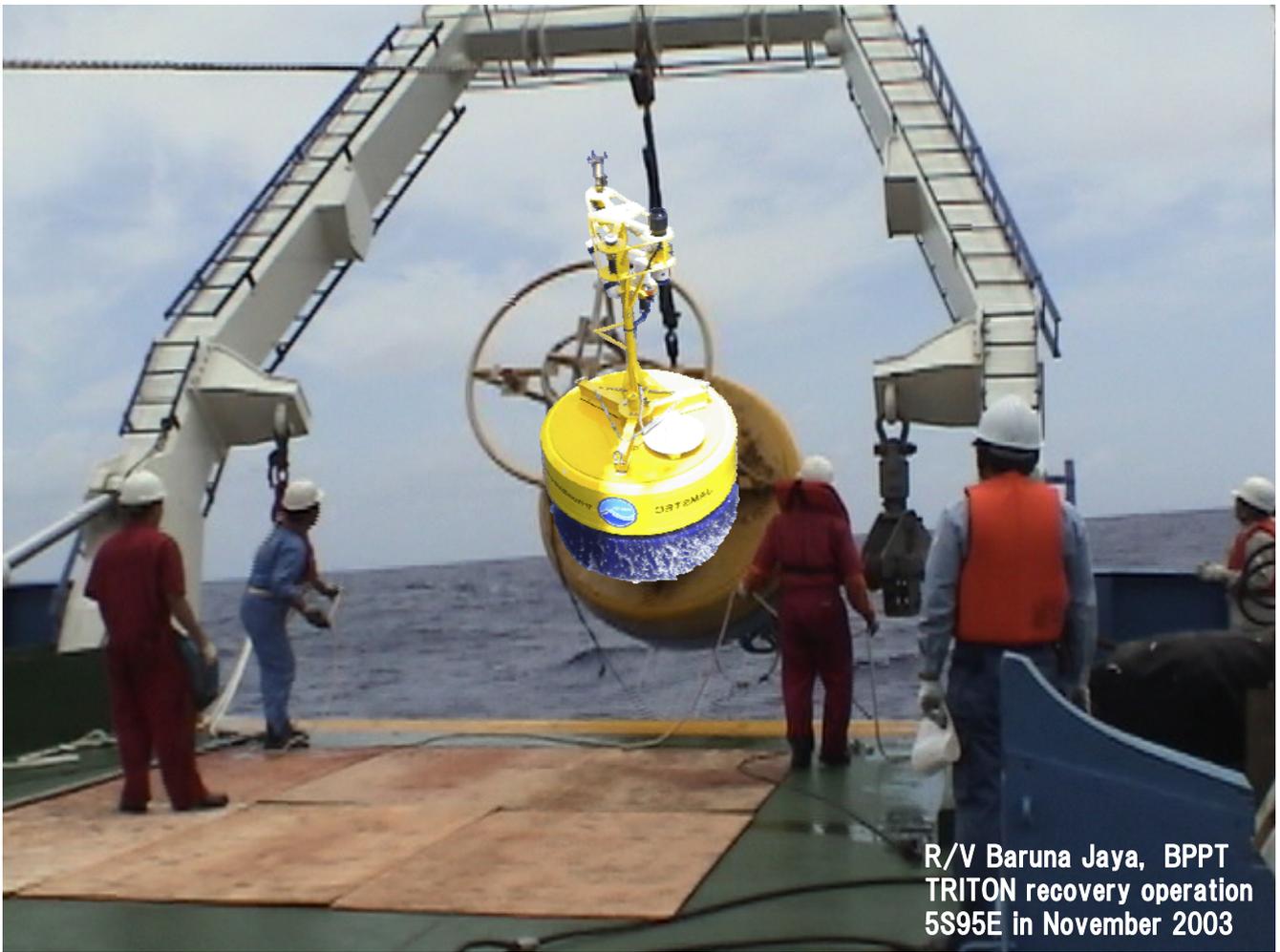
Summary of m-TRITON



- Small size and Light weight float
 - Surface buoy can be assembled by hand without any power machine
- > The weight of heaviest part is at most 80kg



- Easy handling with small vessel





Save the running cost

New Electronics Units for m-TRITON

- Low power consumption Argos transmitter



- Meteorological sensors with new A/D converter unit



- Low power consumption Data logger

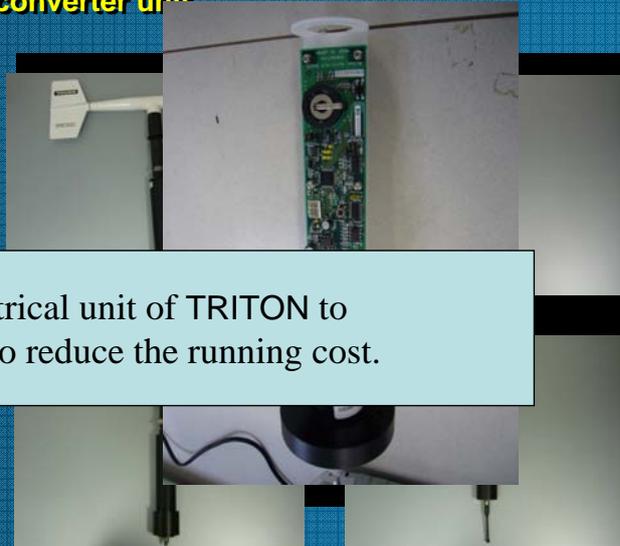


New Electronics Units for m-TRITON

- Low power consumption Argos transmitter



- Meteorological sensors with new A/D converter unit



- Low

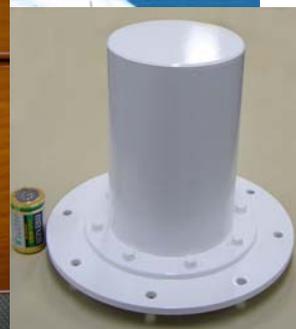


We are replacing the electrical unit of TRITON to these new system in order to reduce the running cost.

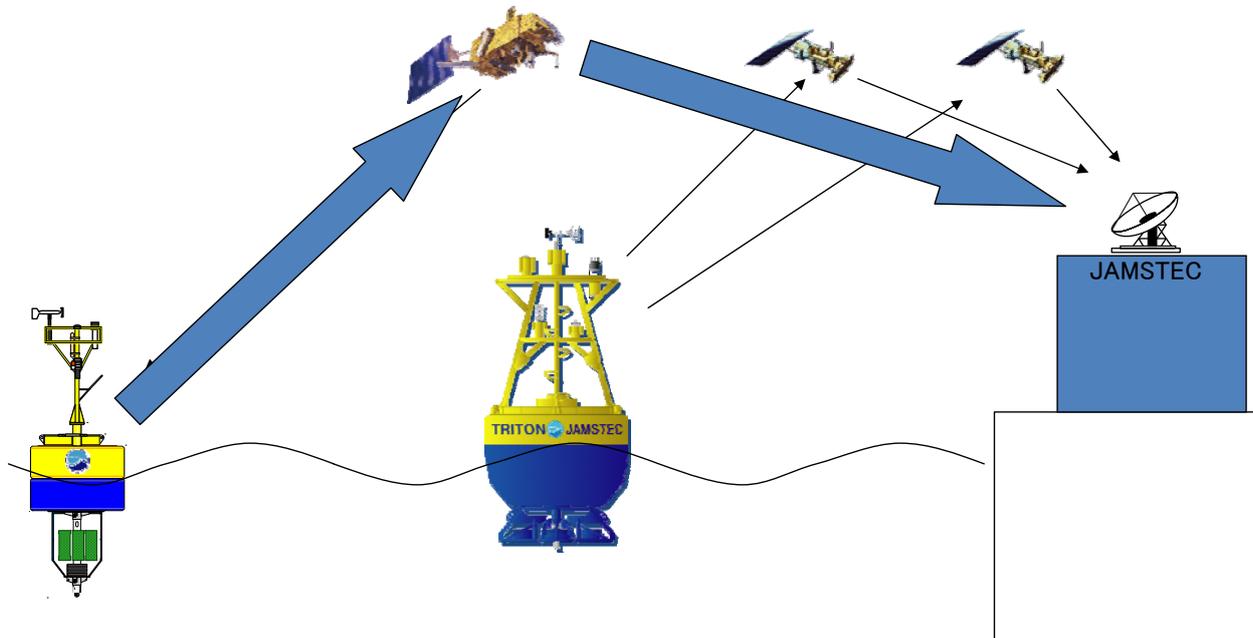
9 June 2010 Buoy Workshop

ARGOS III (A3)

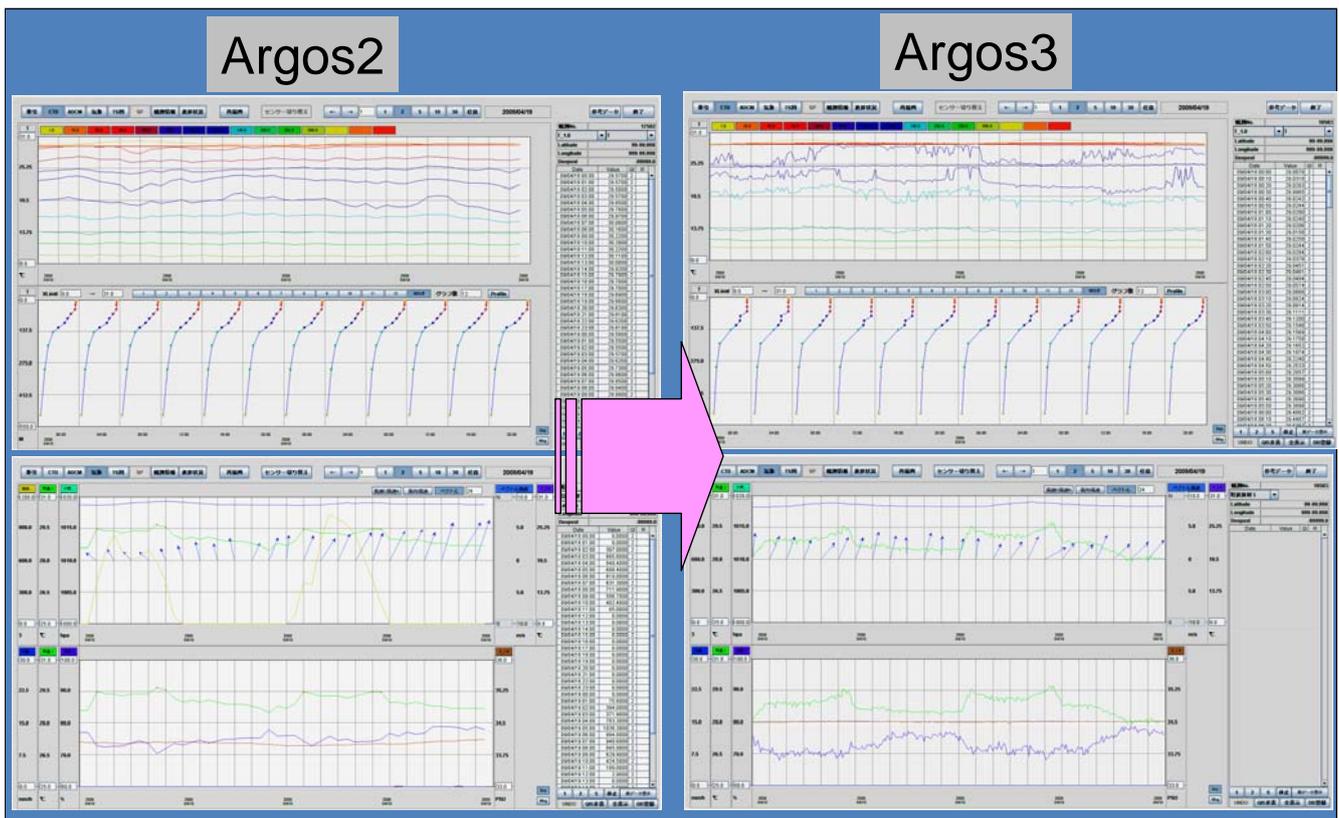
- Traffic Speed :
 - A2 : 200bps × 256bit
 - A3 : 4,800bps × 4,608bit
- Communication :
 - A2 : Single way
 - A3 : Half duplex
- Consumption
 - A2(TB) : 2,220 W·h/Y
 - A2(m-TB) : 1,880 W·h/Y
 - A3 : 620 W·h/Y



ARGOS2 & ARGOS3



Real time Data display A3 vs A2



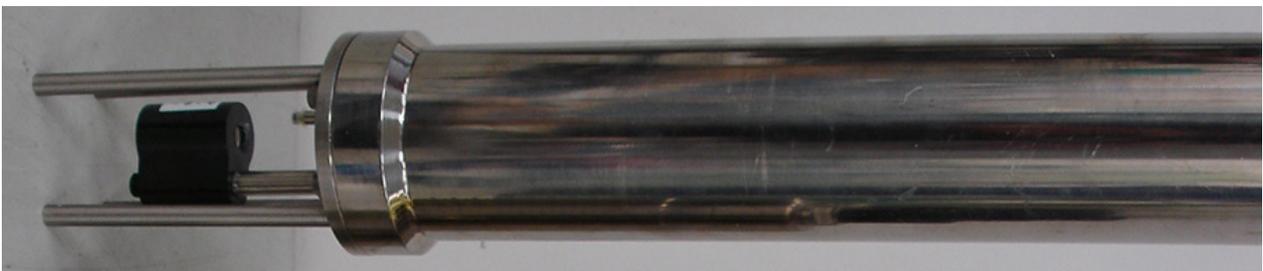


Cost comparison

Item	TRITON (AS-IMET+SBE) Argos-2	m-TRITON (JAMMET+SBE) Argos-3	Difference
Construction cost	106 million JPY ab1.2 million USD	52 million JPY ab0.6 million USD	Δ 54 million JPY ab0.6 million USD
Running cost			
Mooring Ropes Ex. Deploy Depth 4700m	8 million JPY ab96 k USD	7.2 million JPY ab86 k USD	Δ 0.8 million JPY ab10 k USD
Battery cost /Year	3 million JPY ab36 k USD	1.2 million JPY ab14 k USD	Δ 1.8 million JPY ab22 k USD



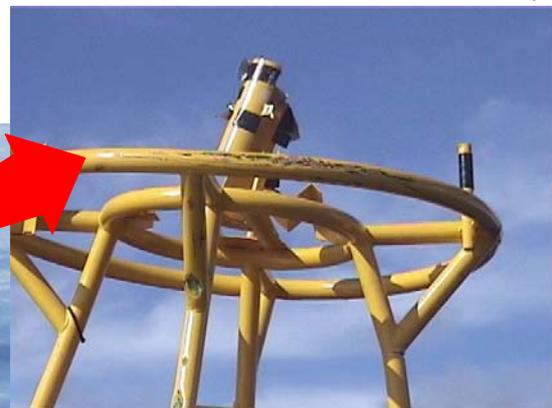
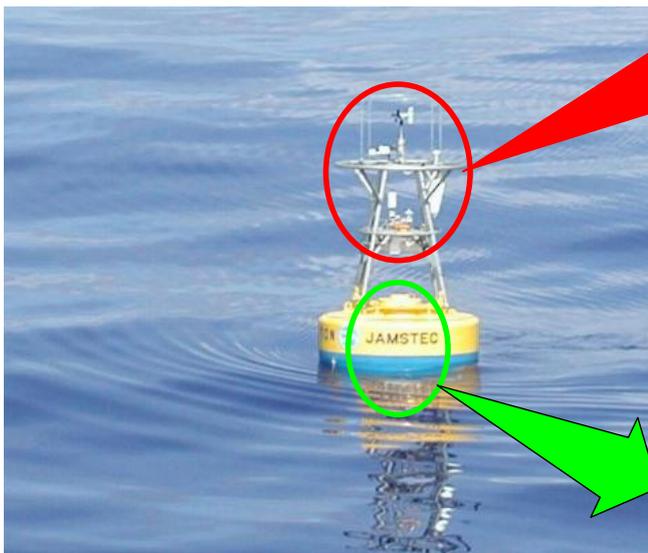
CTD





Anti-Vandalism

Meteorological sensors and electronics was stolen



Special bolts and nuts were used to protect sensors and electronics.



Tower had cracks and was pulled down



The aluminum tower was replaced with a stainless steel tower.

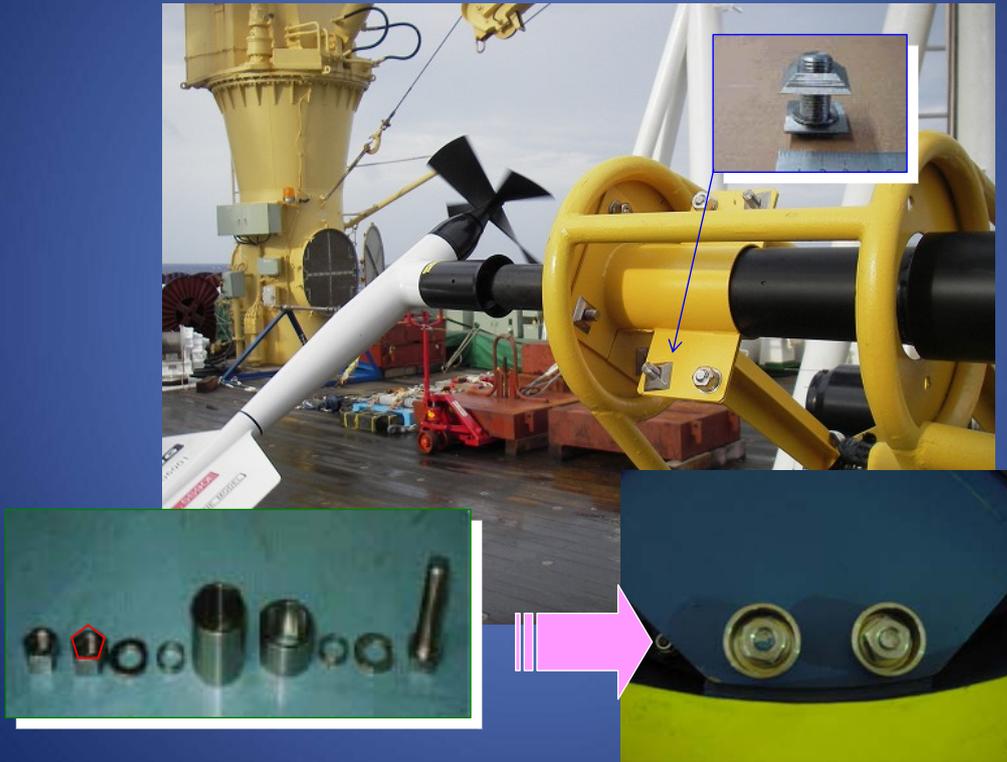


Friend of justice !!



Iron mask

Special Gear for anti-Vandalism



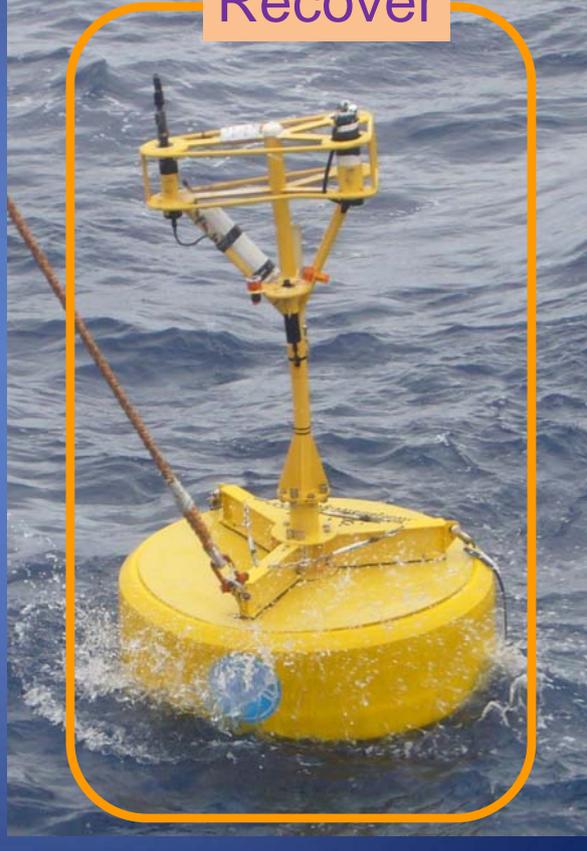
35

RAMA(5S 95E)

Deploy



Recover



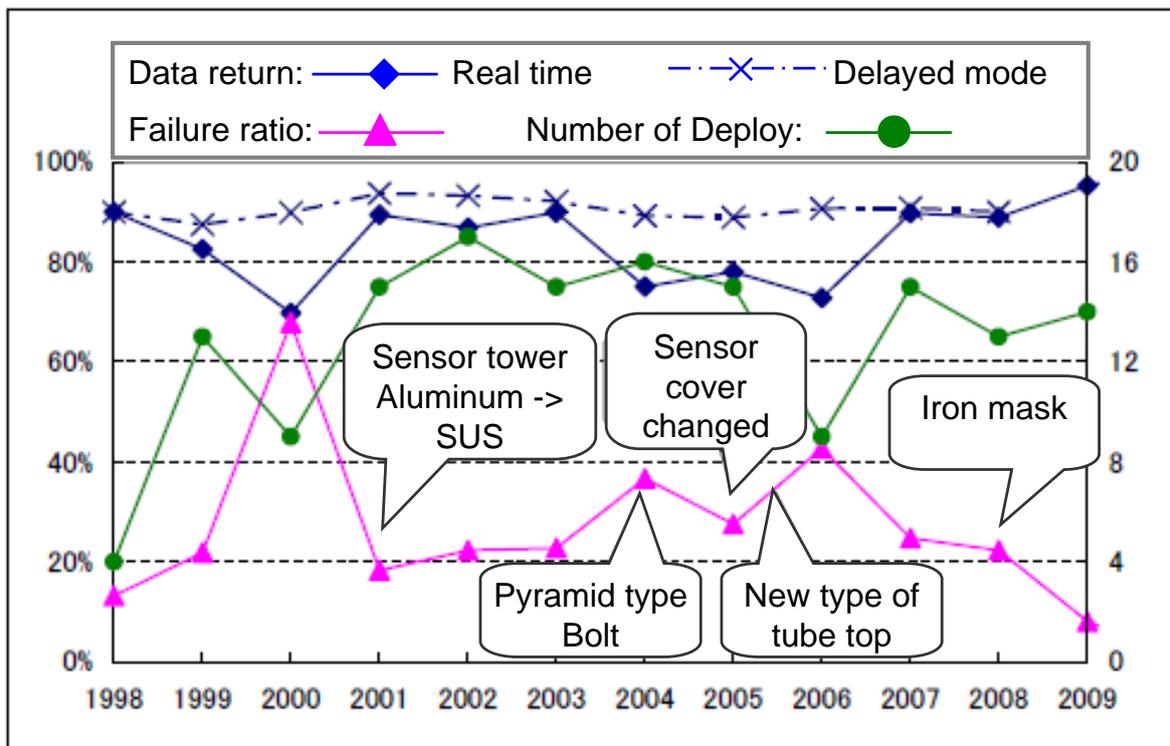
RAMA(1.5S 90E)

Deploy

Recover



9 June 2010 Buoy Workshop





Summary

- m-TRITON achieved the easy handling with small vessel
- m-TRITON achieved the reduction of power consumption -> Important for long interval mooring
- m-TRITON achieved the reduction of construction cost and running cost
- Existing TRITON introduce the new electrical unit of m-TRITON
- Anti-Vandalism measure are effective for the data return and system failure prevention

A photograph of a yellow buoy floating in the ocean. The sky is blue with large, white, fluffy clouds. A faint rainbow is visible in the sky behind the buoy. The text 'Thank you for your attention !' is overlaid in the center of the image in a yellow, bold, sans-serif font.

**Thank you
for your attention !**