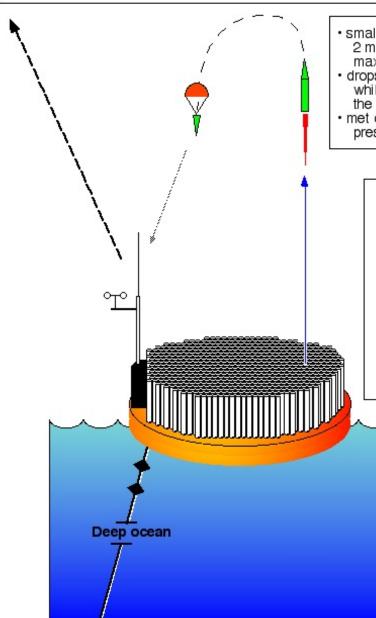
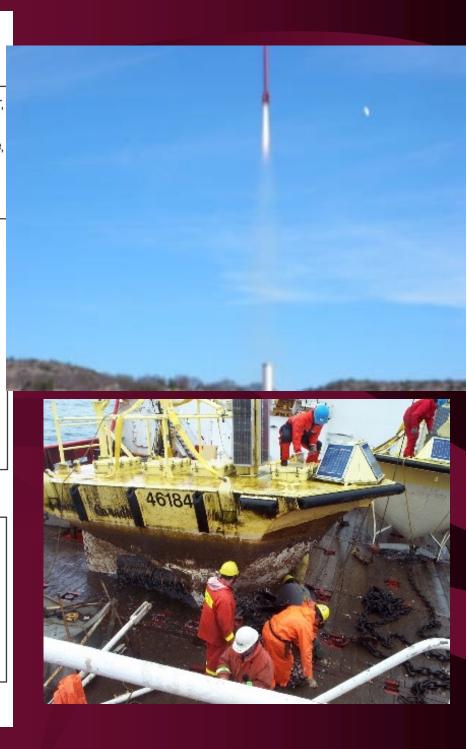
## Rocket Buoy System (RBS) For In-situ Weather Observations Over Oceans

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- small rocket (approx 7 cm diameter, 2 m long) boosts dropsonde to max altitude of roughly 6 km msl
   dropsonde gently falls from apogee, while transmitting weather obs to the buoy for relay to satellite
   met obs of temperature, humidity, prossure, wind (CDS)
- pressure, wind (GPS)

  - 1-year design life200 sealed launch tube with rockets per buoy
  - · 1 launch each day
  - spare tubes for
    - · re-launches in case of failure
    - special targeted observation periods
  - requires yearly maintenance or replacement
  - heavy casing (not shown) around launch tube area to protect from waves.
    - · surface weather obs on buoy
    - subsurfáce oceanographic observations.
    - tilt sensors on the buoy, slightly offset the launch time until optimum.





## Rocketsonde Development at UBC









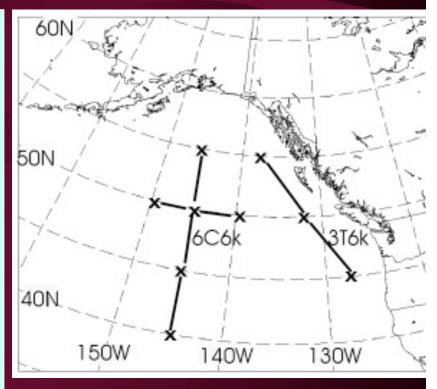






## Observing System Simulation Experiments (OSSE)

- OSSEs are numerical experiments where "virtual" rocketsonde soundings are inserted into numerical forecasts
- MM5 runs of 7 winter cyclones & 5 summer cyclones 2001-2002.
- Experimented with effects of buoy locations
- Found N. Amer. paid 20 35% penalty in fcst accuracy due to the Pacific Data Void.
- Optimum RBS: 6 buoys in cross (see Fig ->) 6 km altitude, 12Z each day, only Fall-Spr.
- Penalty reduced to 5 15% with optimum RBS



Spagnol & Stull, 2003