Bareboat Necessities (BBN) Boat Weather Station

mgrouch

Version 2024-06-19, Bareboat Necessities Boat Weather Station

https://bareboat-necessities.github.io

https://github.com/bareboat-necessities/lysmarine_gen

https://github.com/bareboat-necessities/lysmarine_gen/issues

https://bareboat-necessities.wixsite.com/my-bareboat

https://bareboat-necessities.wixsite.com/my-bareboat/bbn-boat-monitoring.html

https://github.com/bareboat-necessities/bbn-m5stack-tough

https://github.com/bareboat-necessities/bbn-nmea200-m5atom

PDF version:

https://bareboat-necessities.github.io/my-bareboat/bbn-boat-weather-station.pdf

Chapter 1. BBN Boat Weather Station

Platform esp32 (m5stack). Software EspHome generated firmwares.

1.1. Sensors

- Time
- Temperature/pressure/humidity
- IMU
- Illumination
- Wind speed / direction
- External GPS
- Rain sensor
- Snow/ice sensor
- Air quality sensor
- Lightning detector
- Water temperature
- Water salinity

1.2. Derived Data

- Dew point, frost point
- Sunrise/sunset time, sun position
- Moon phase, moon position
- Waves height, period
- Max acceleration
- Heel amplitude
- Pitch amplitude
- Wind sustained / wind gusts
- Wind apparent/true/ground (directions and speed)
- Magnetic declination for the location
- Lightning distance, intensity
- UV index
- Fog conditions existence

- Barometer trend
- Air density
- Vapor pressure, vapor concentration, water vapor content, relative/absolute humidity, enthalpy
- Other air psychrometry parameters: https://www.psychrometric-calculator.com
- Precipitations
- Beaufort wind scale
- Douglas sea scale
- Tide stage (from moon and sun)
- Zambretti algorithm predictions
- Windchill
- Tides and currents for the location?
- HF propagation conditions from ionosphere data. Ex: https://solar.w5mmw.net/