Simulating a Radio Astronomical Observation within a chosen Oceanographic Parameters

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Abstract (300 – 500 word limit)

Planning to perform radio astronomy related observation necessarily requires a specific device known as radio telescope. These specially designed instrument observe the longest wavelengths of light, ranging from 1 millimeter to over 10 meters long. It offers various avenue of observation such as continuum observation, solar wind observation, up to spectral line observation. In an archipelagic countries like Philippines, opportunities for radio astronomy observations can offer wide variety of location. However, radio astronomical observations were being restricted by the noise (known as radio frequency interference of RFI) which is both naturally present and man made in a certain location; this could essentially hinder the results that we are expecting from the observation itself. In order to propose such observatory location that could possibly isolate RFI. The researcher proposed a simulation for a radio telescope that is located in an ocean or sea then compare the results with the data obtained by an actual radio telescope. By including RFI parameters such as; Population density, climate type, wind directions, humidity, and other atmospheric conditions. The data comparison will be exclusive, and will determine if the data obtained from an actual radio telescope contains a significant difference from the simulated one. This will show the efficiency of a radio observation to be conducted in an ocean or sea compare with land based radio observation. Also, this will determine if a certain oceanography has a high frequency or a low frequency. The researcher was able specify the characteristics of ocean based radio observation as more efficient place to conduct radio observations including the types of observation to be made. From this, the researcher could offer one of new avenue and techniques for radio observation by placing it in an ocean based setting. One of its implication could bridge the Square Kilometer Array (SKA) initiative upon further efforts.

Image

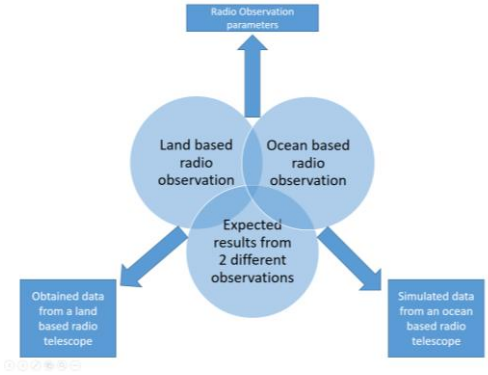


Figure 1: Framework of the radio observation and the parameters pointed

Recent Publications

1. Masong, R. (2018) Scientific Requirement of Radio Astronomy Observation in the Philippines. Journal of Physics: IOP Conference Series.
2. Masong, R. (2018) The Star Maps Above the heavens of Mayawyaw Ifugao and Tawi-tawi. The Antoninus Journal
3. Masong, R. (2017) Star Maps and Star Catalogues in the Context of Philippine Ethnoastronomy. DLSU Graduate Research Congress.



Biography (150 word limit)

Rizchel Masong is a graduate physics student of De La Salle University which research interest is in radio astronomy specifically with pulsar observation/pulsar timing arrays. His passion in astronomy and astrophysics boosted him to become one of the pioneer of radio astronomy in his institution. Right now, he is part of the Optics/Photonics Technology Instrumentation and Conservation Science (OPTICS) research unit He is an active researcher in submitting various abstracts and researches about pulsars and radio astronomy which he initiated with site location study for radio astronomy in the Philippines, including the contextualization of Philippine Ethnoastronomy,

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Notes/Comments: