

Review of Coastal HF radars in the Mediterranean: status of operations and a framework for future development, P. Lorente et al.

This paper is an ambitious community work aiming to showcase the current status of the Mediterranean HFR network and the future roadmap for coordinated actions that will allow this to play a major role in the high-level challenges of the ocean observing landscape in the Mediterranean Sea.

Significant innovations are described, with interesting multi-site approaches and covering a very wide spectra of fields in the overall value-chain from the HFR systems operations to the transfer of advanced data products.

The presented work is also gathering a complete review of the main levers that the community is tackling (BPs, Harmonization, Data Quality, New parameters...) for promoting exchanges between operators, and creating synergies and added value by transforming a set of individual radars into an integrated network.

The description of the community status, difficulties, key references and challenges derives to a very useful roadmap for the current actors of the network, also for the potential future contributors, and in general for the ocean observing community.

The established regional roadmap is well linked to the European and Global initiatives. Some regional specificities are well described, in particular in the SWOT analysis. However, it may be clarified which of those challenges for future development is really answering a specific or prioritized issue for the Region, and which are shared with the European or Global community.

The manuscript will definitely represent an important step forward for the ocean observing community.

Some detailed minor changes and recommendations for improving the manuscript are listed below:

I.138 General capabilities of HFR are explained, but here or elsewhere in the paper, there is no mention to the limitations of using Long Range in semi-enclosed seas like the Mediterranean Sea (difference with the IBIROOS area where there is a significant number of Long-Range systems). This can be also mentioned later in the SWOT Weaknesses or at least as a factor for achieving the full coverage.

Fig.2 A Mediterranean HFR Working Group is mentioned. In the text I.184, it is called Mediterranean HFR network. For consistency, this would be named in Fig2 (not to be confused with Observation Working Group, one of the 3 MONGOOS WGs).

I.200 Errata: the EuroGOOS HFR Task Team (word order and upper case for Task)

I.237: It may be more precise to say 0.5-5m in "operating at specific frequencies within the 3–30 MHz band and providing radial measurements which are representative of current velocities in the upper 0.5–2 m of the water column. See Rubio et al. 2017

In 2.1 *Fundamentals of HFR technology*, it could have been mentioned how the common sea states of a semi-enclosed sea like Med may impact the performance of longer range HFR, with

possible consequences to be taken into account in the plan for achieving a full coverage of the Mediterranean coastline.

I.426. The abbreviation GoN is used before the full version that appears I.456.

Table 1. For consistency, I would recommend to use “Gulf of Naples” in Table 1.

I.448: Long et al 2011 (Central California) should not be included in references on European waters.

I.459: using two “alternative data sources” rather than “different platforms”

I.465 errata: against

Figure 5a. Quality of graphs should be improved (size of labels, same limits for Axes Y, same type of lines, general image sharpness).

I.569: Add a comma: In the Ligurian Sea experiment,

I.571: adda comma: During the experiment,

Section 2.4: the beginning of Section 2.4 appears too general for this section and may better fit in section 1.5. Only aspects dealing with data flow may be kept in the historical review of the roles of the different initiatives.

L636-642: The text may be simplified here as it is a bit redundant with what is explained later in 2.5 and 2.6.

I.651 Figures by mid-2021 should be presented as a result, not as an objective. Or the date and corresponding objective should be updated.

4. Multi-institutional collaborative projects with HFRs in the Mediterranean Sea: I would suggest to mention the ongoing JERICO-S3 and JERICO-DS projects, part of the JERICO-RI initiative. Their impact could be significant in terms of integration of HFR among key coastal observing technologies.

I.923: I would suggest expressing differently the reason for a clear north-south unbalance in the Mediterranean region. The MOONGOOS community knows better than me the regional variability. More than the Political systems themselves, the factors may lie in the differences between environmental policies, resources dedicated to marine monitoring and research programs, socioeconomical and political priorities, etc.

Figure 10. the different Threats may be organized with “Insufficient adoption of HFR currents standardization” after other linked issues like “Lack of agreement on the data policy”.

*In 5. Future challenges and prospects:*

As part of the roadmap to transform individual radars into an integrated network, a phased approach is proposed. The different steps aim to optimize and consolidate the network of existing systems. However, the network is currently covering “a small portion of the entire coastal domain”. As part of this roadmap, authors could add plans for:

- Defining a quantitative objective (number of systems, surface covered...) as a long-term target

- Agreeing a joint methodology to define priority areas at regional level in the development of the network (for example as introduced in [JERICO-NEXT Deliverable D3.4](#))
- Performing coordinated actions towards stakeholders (for example towards National GOOS Focal points who are serving in EOOS Operation Committee)

Additionally, all the general, technical and Research aspects are relevant for the Med and beyond at European and Global level. But it would be interesting to mention a bit more explicitly how will be tackled some regional specificities exposed in the SWOT analysis.