

Interactive comment on “VISIR-I: small vessels, least-time nautical routes using wave forecasts” by G. Mannarini et al.

Anonymous Referee #2

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General Comments

The authors present a clear description and informative evaluation of a new ship routing model, with an emphasis on the use of wave forecast data for optimal and safer routing in the Mediterranean. The review of literature (Sect. 1.1) is thorough and wide ranging. Justification for the new development (VISIR-I) is clearly articulated in Sect. 1.2. The method section (Sect. 2) is very well organized, from first principles to all necessary practical details, including computational performance and validation alongside an analytical example. The three Mediterranean case studies (Sect. 3) are clearly presented and provide a diverse range of model testing. Overall, the manuscript is well-written, with clear tables and figures throughout. It should be suitable for publication in GMD, subject to minor and technical revisions in response to comments below.

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Specific Comments

The Abstract is well written, providing general information. It could be developed to provide specific, quantitative information on route lengthening, time saved, computational performance, etc.

While operational focus is on the Mediterranean, VISIR-I could presumably be used worldwide. The prospects for this wider uptake could be discussed in Sect. 4.

Technical Corrections

1. p.7920, l.21: typo “such such”
2. p.7927, l.25: please refer to Table 5 for definitions of B, T in Eq. (19); in the Froude number, g_0 is presumably gravitational acceleration - please specify this
3. p.7930, l.5: type “explicitly”
4. p.7931, l.21: T_W is introduced in Eq. (27), but defined later (p.7932, l.22) - please define T_W straight after Eq. (27)
5. p.7933, l.2: What is meant by “1.6” in “(IMO, 2007, 1.6)”?
6. p.7937, l.4: Grammar, “in order for λ to sense ...”
7. p.7939, l.14: Grammar, “ECMWF analyses are used ...”
8. p.7961, caption: Specify “Ship and environmental parameters (p_s and p_θ respectively)

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