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Predictable zone for phase-resolved reconstruction and forecast of irregular waves

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***Research Highlights**

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- Phase-resolved predictable zone of irregular waves for given measurements is derived.
- The predictable zone is derived in closed-form expression based on linearized wave theory.
- Measurements can be one or more fixed/moving probes and/or whole-area measurements.
- Optimal deployment of measurements to maximize the predictable zone is derived.
- Asymptotic estimate of predictable zone volume for large number of measurements is obtained.