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Breakout Session I Notes

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These notes are intended as a supplement to the presentation. The following discussion points were captured by workshop rapporteurs during breakout groups:

- High quality measured wave data sets in the coastal and open ocean are necessary for a range of operations from customized support to the maritime industry to more scientific pursuits (e.g., model validation, forecast verification, satellite calibration and the development of marine climatologies).
- Organizations providing wave information need to identify the many stakeholders and provide those stakeholders with some minimal information on how wave information helps to protect life and property.
- Those organizations that desire their wave information to be made publicly available need to follow standardized formats.
- Systems such as WAVCIS, which provide wave model output, need wave buoy data as calibration points.
- Organizations providing wave information should provide products that support planning (e.g., securing barge operations, sortie ships at a naval base, etc.) and response (e.g., search and rescue). Products from buoy networks might showcase wave shoaling and breaking processes, especially during extreme events such as Hurricane IRENE.
- Analytical techniques should be developed (possible analysis of wave buoy time series) to produce innovative wake products that directly support the planning of marine police patrols and force protection strategies.
- Deployed ocean wave energy systems require information on wave climatologies and extreme conditions and benefit from real-time wave observations and forecasts.
- Developing seas tend to have a broader spectral peak. Decaying seas have a narrower peak. While the JONSWAP Spectrum is used by many, the Bretschneider spectrum is sometimes used when the need for fully developed seas is too restrictive. OPT uses the Bretschneider spectrum because the peak is broader than the JONSWAP spectrum, and is therefore more conservative for predicting power extraction. On the other hand, if the wave spectrum is narrow band it is easier to exploit.
- Potential environmental impacts from wave energy systems need to be assessed, for example, by measuring acoustical signatures in different seas.
- Deep water wave observations are particularly important to making improvements in our understanding of the physics of very extreme sea states, especially in modeling the ocean‘s response to tropical and extra tropical storms.
- Observations in coastal areas support forecasting, but are not usually designed to support shipping, recreation, and marine spill response. Additional wave measurements are needed in shallow and very shallow water locations. Optimal sampling schemes should be defined based on coastal geography and operational needs.
- Surf characteristics are poorly observed and the forecasting ofthese characteristics remains art rather than science.
- Improved definitions should be developed for features such as surf zone width.

Session Summary ─ Many operations are sea state limited, e.g., those involving diving and ROVs, crane lifts, tanker loading, and drilling. Operators need authoritative information on wave climates, real-time wave heights, periods, and directions, and forecasts of those parameters. Statistical information is especially useful to set an expectation concerning the size of the waves.

These rapporteur notes do not necessarily reflect the view of all participants and speakers of the respective breakout groups.