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Performance of ECCC surge forecasting systems near Canada's East Coast during the passage of hurricane Dorian

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Accurate forecasts of storm surges caused by winds and atmospheric pressure are important for the protection of life and property in coastal regions and also for safe navigation. Therefore, Environment and Climate Change Canada (ECCC) maintains and develops surge prediction systems. This study focuses on the assessment of the timing and amplitude of predicted surges at selected locations during the passage of hurricane Dorian. The systems use barotropic ocean models to simulate water levels and currents at 1/30 and 1/12 degree horizontal resolutions.

The relatively low tidal range at the time of Dorian's landfall helped prevent catastrophic flooding. However, with a closer superposition of the peak surge and high tide, the damage could have been more significant. Reasonably well predicted timing of the highest surge by the system helped prevent the over-issuance of warnings. Sensitivity of the forecast quality to the lead time, resolution and atmospheric forcing for the event will be presented.