

An Objective Method with a Continuity Constraint for Improving Surface Velocity Estimates from the Geostationary Ocean Color Imager

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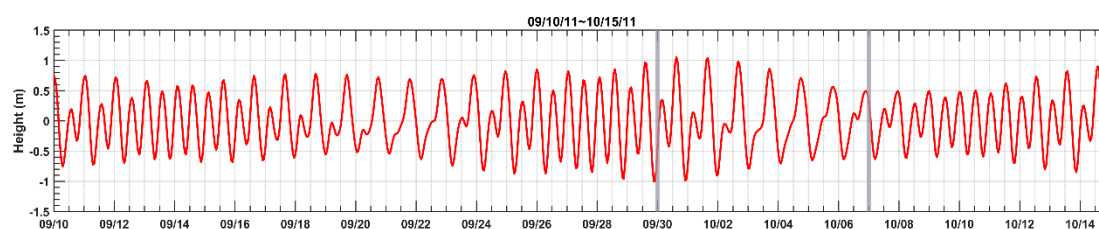


Figure S1. The hourly tidal heights at (122°E, 31°N) from 10 September to 15 October 2011. The start time for each case during spring and neap tides is marked by a bold gray line. The time is in Greenwich.

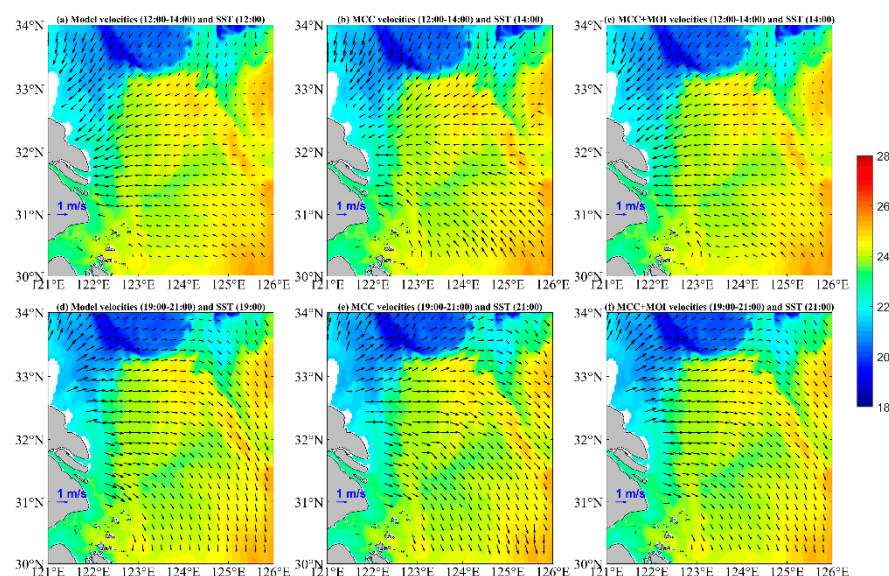


Figure S2. The averaged velocity fields from model (left), MCC (middle), and MCC+MOI (right) for 12:00–14:00 UTC and 19:00–21:00 UTC on 30 September 2011 (**during spring tide**), overlying with the MITgcm model SST for 12:00 UTC (a), 14:00 UTC (b–c), 19:00 UTC (d), and 21:00 UTC (e–f).

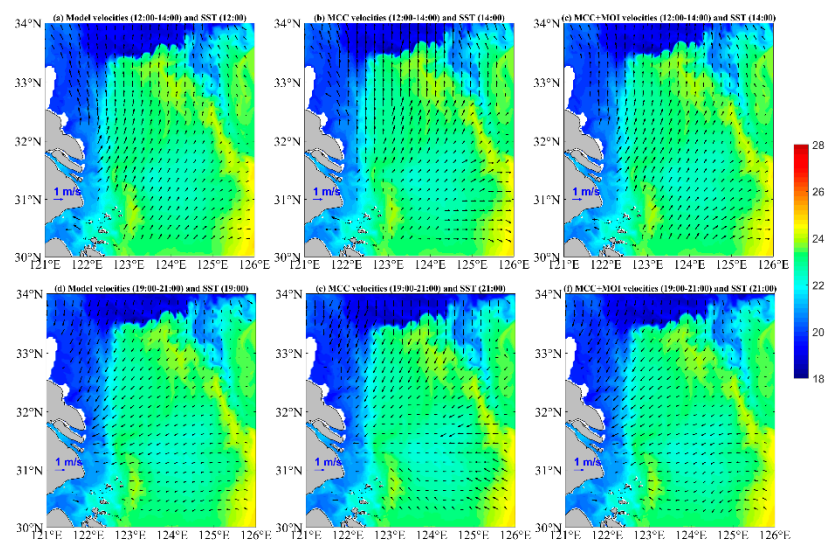


Figure S3. Same as Figure. S2, but for 7 October 2011 (during neap tide).

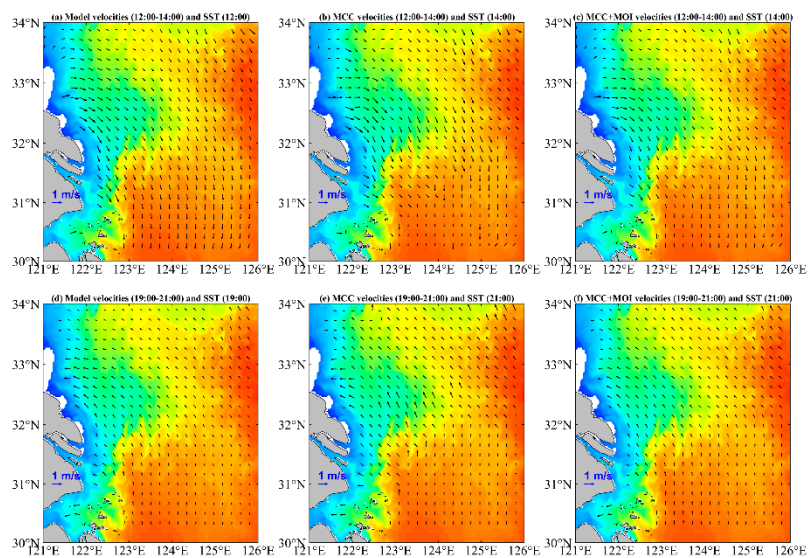


Figure S4. Same as Figure. S2, but for 1 January 2012 (in winter).

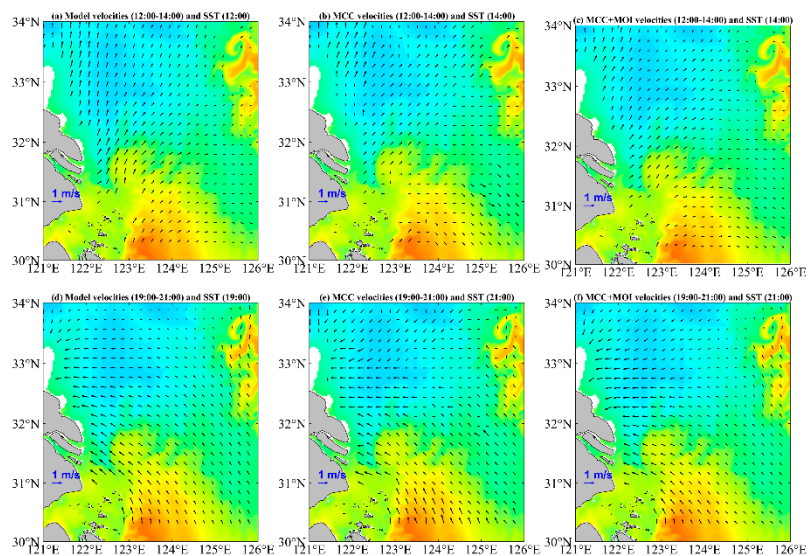
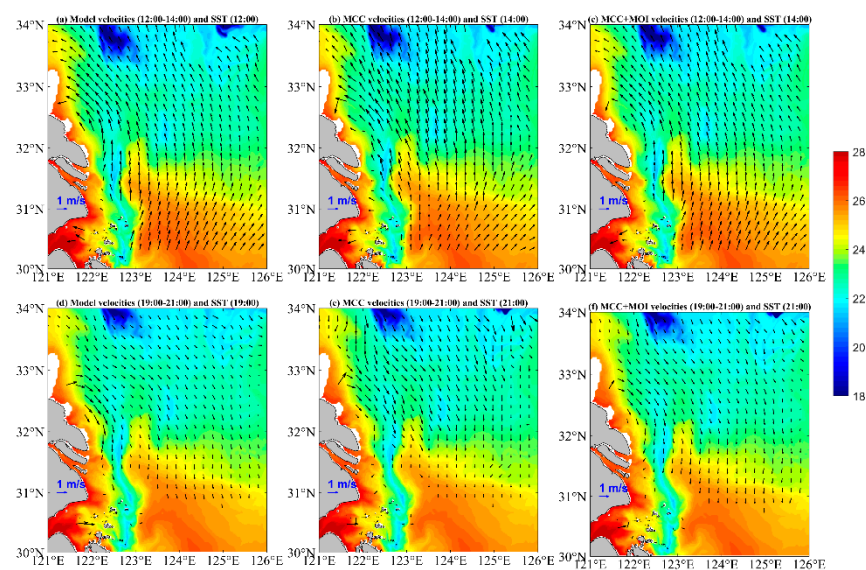
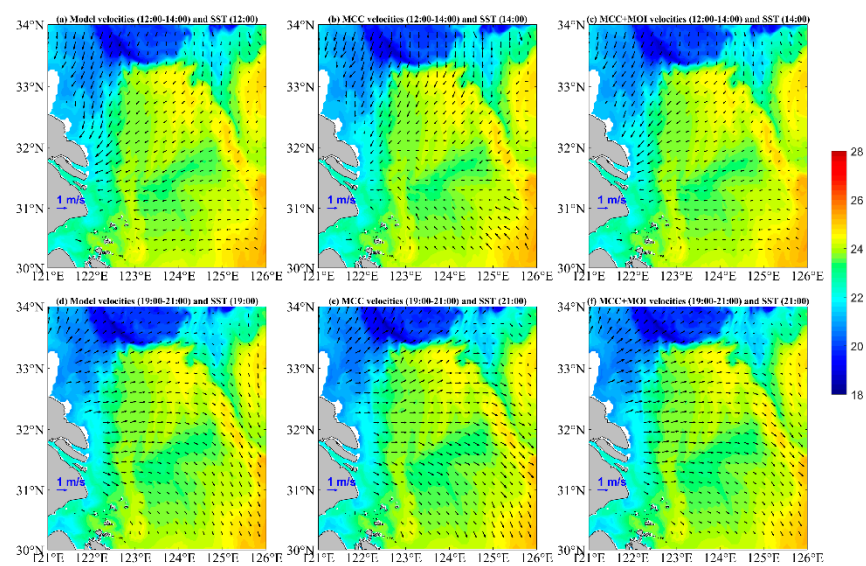


Figure S5. Same as Figure. S2, but for 1 April 2012 (in spring).**Figure S6.** Same as Figure. S2, but for 1 July 2012 (in summer).**Figure S7.** Same as Figure. S2, but for 1 October 2011 (in autumn).

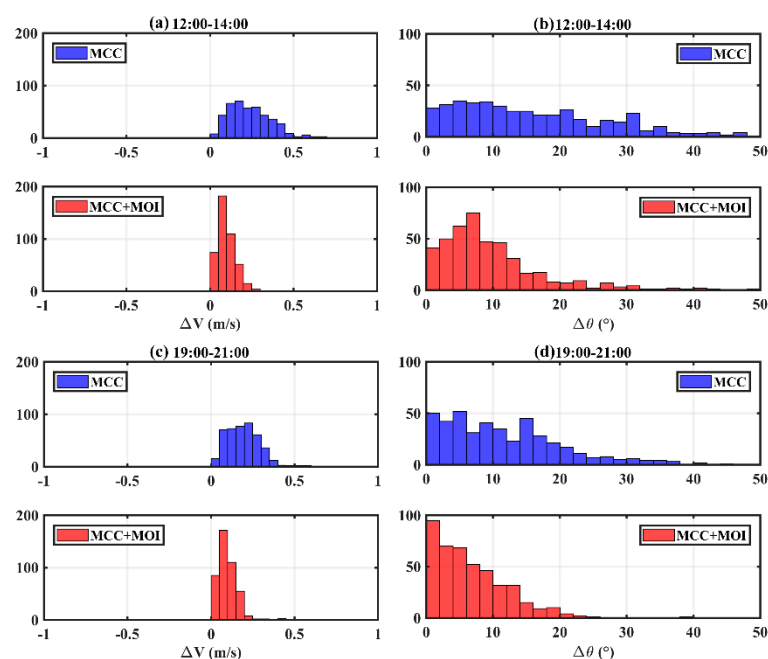


Figure S8. Histograms of magnitude and angle differences between the MITgcm model velocities and those from either MCC or MCC+MOI on 30 September 2011 (during spring tide). For this histogram comparison, the total number of model vectors equals those estimated using MCC and MCC+MOI.

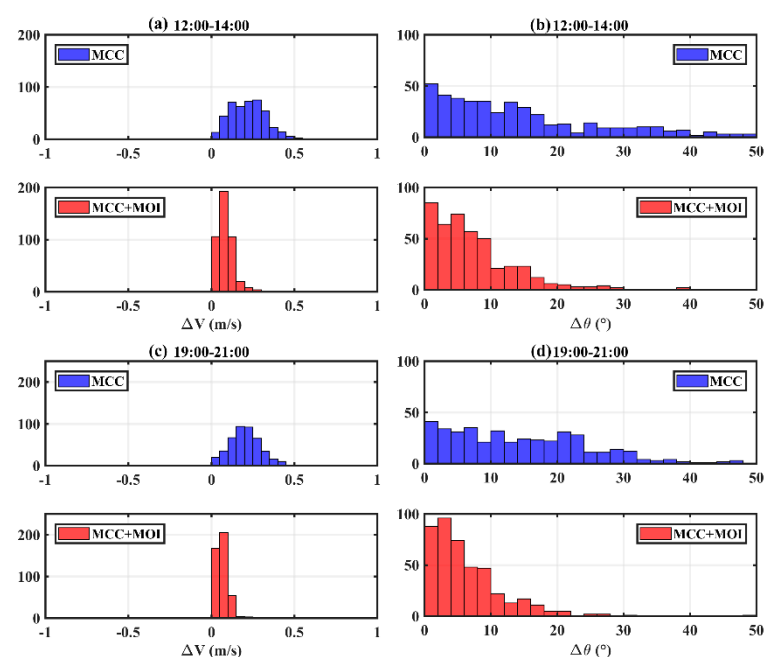


Figure S9. Same as Fig. S8, but for 7 October 2011 (during neap tide).

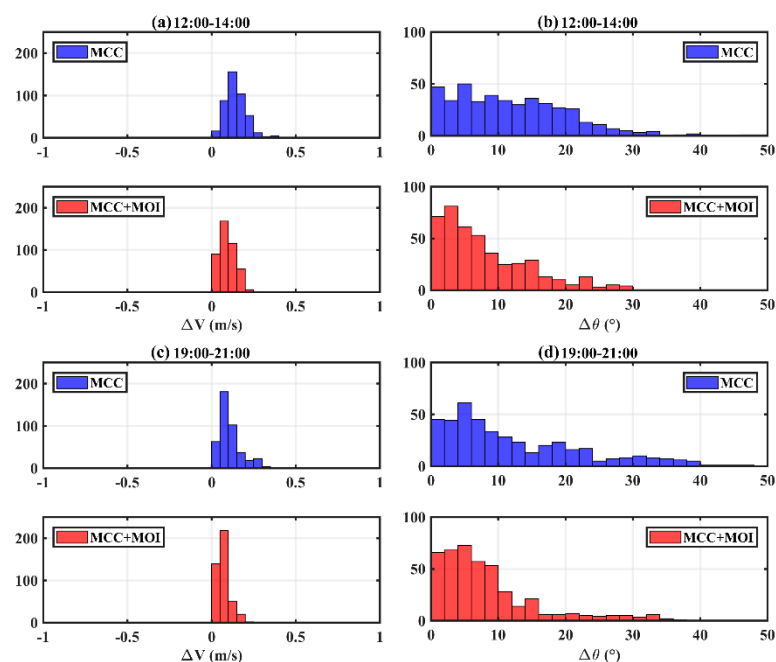


Figure S10. Same as Figure. R9, but for 1 January 2012 (in winter).

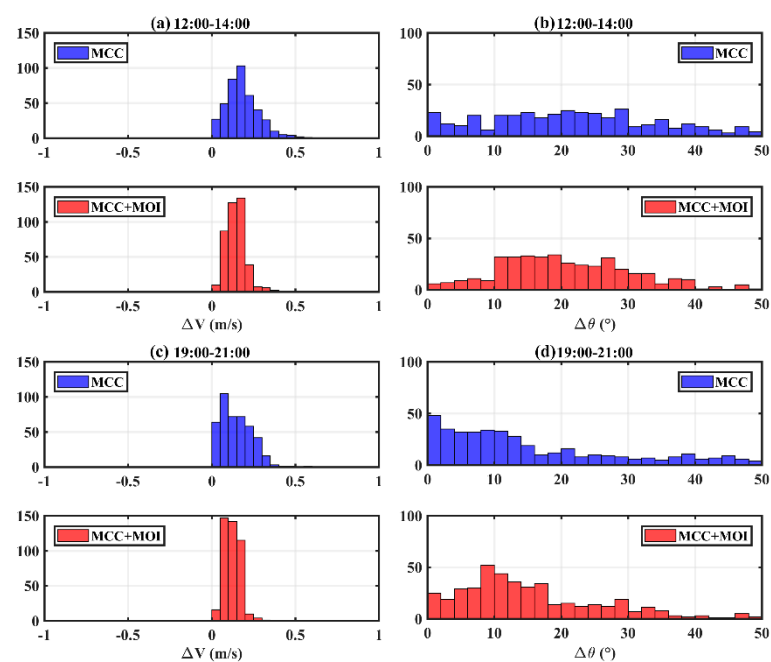


Figure S11. Same as Figure. S8, but for 1 April 2012 (in spring).

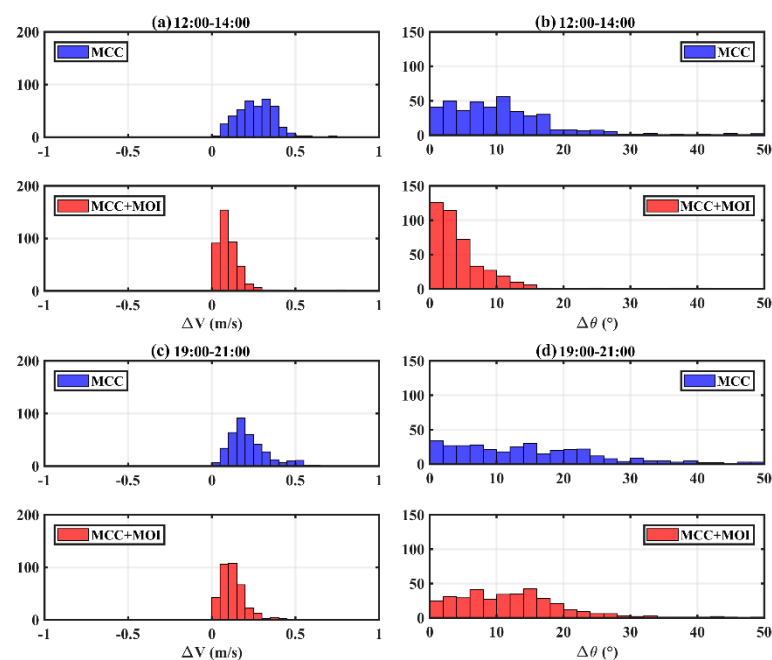


Figure S12. Same as Figure. S8, but for 1 July 2012 (in summer).

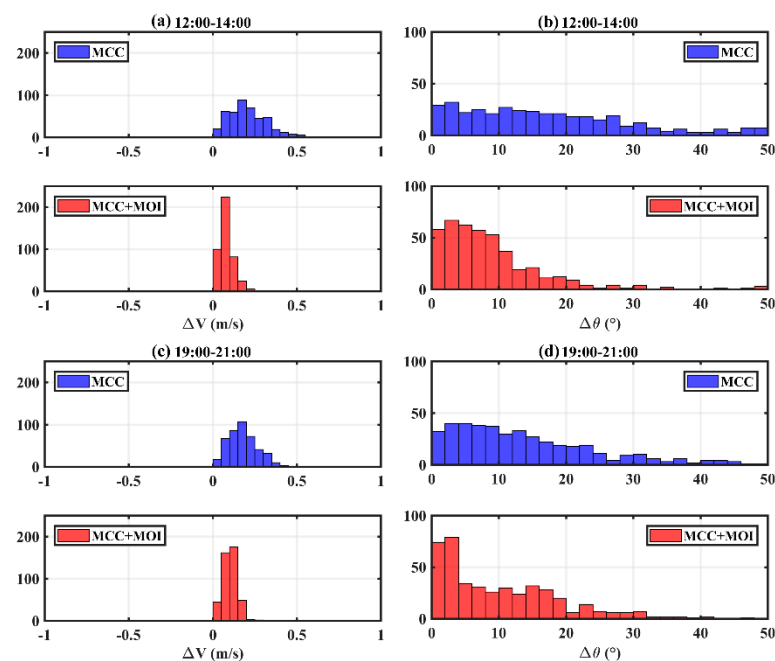


Figure S13. Same as Figure. S8, but for 1 October 2011 (in autumn).

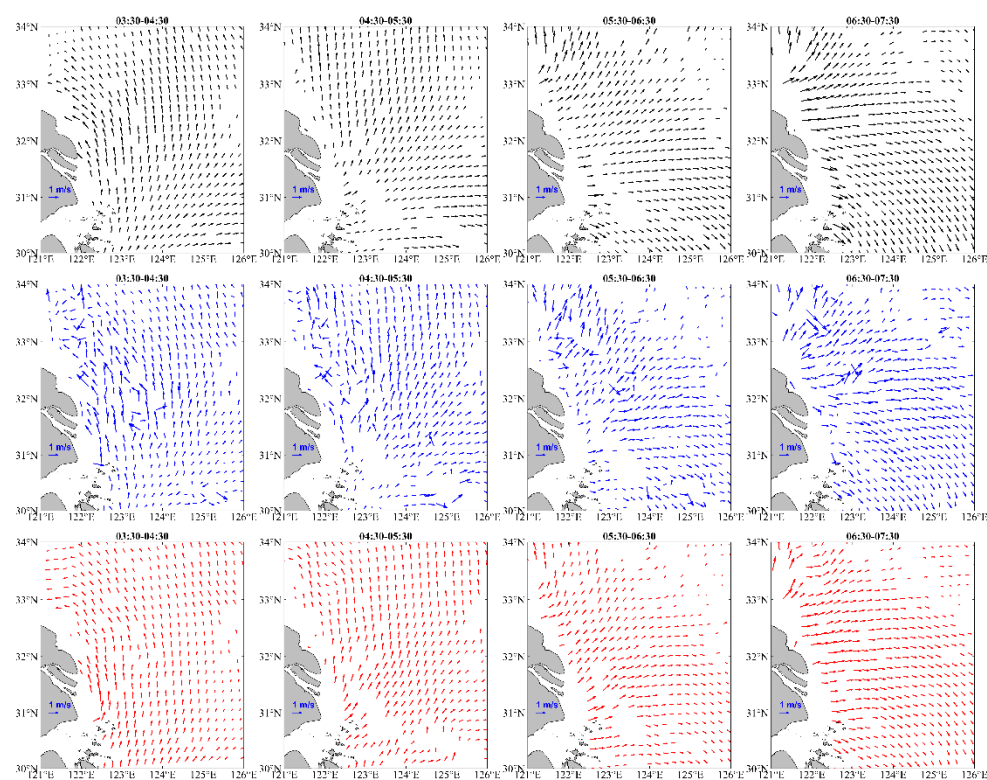


Figure S14. Surface currents from OSU model (top), MCC (middle) and MCC+MOI (bottom) for four GOCI image pairs at 03:30-04:30 UTC, 04:30-05:30 UTC, 05:30-06:30 UTC and 06:30-07:30 UTC on 5 April 2011.

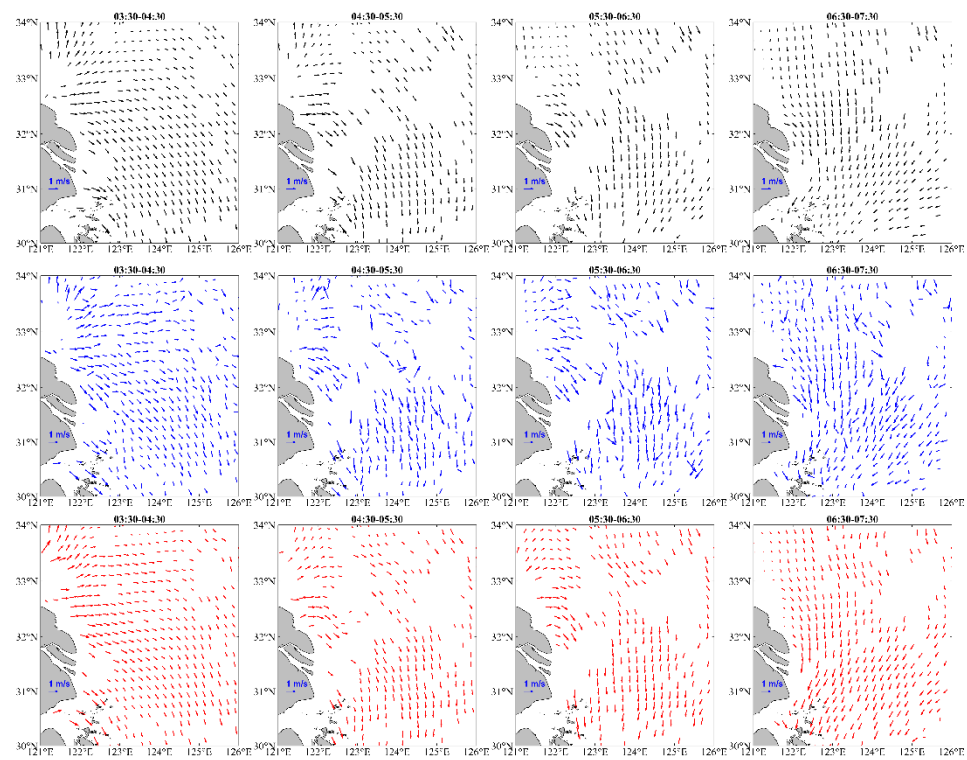


Figure S15. Same as Figure. S14, but for 16 September 2013.

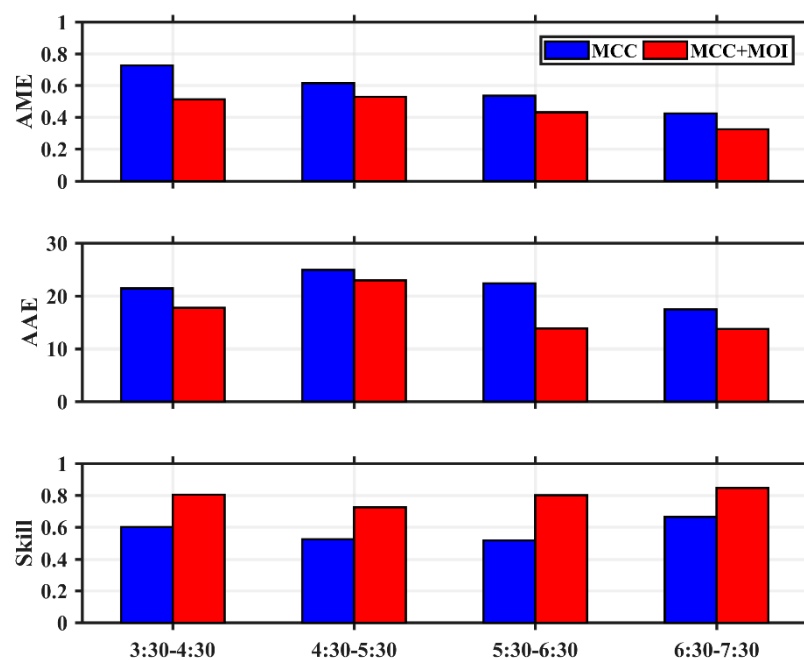


Figure S16. Comparison of AME, AAE, and skill for velocities from the OSU model and from GOCI imagery using MCC and MCC+MOI for four different time intervals on 5 April 2011.

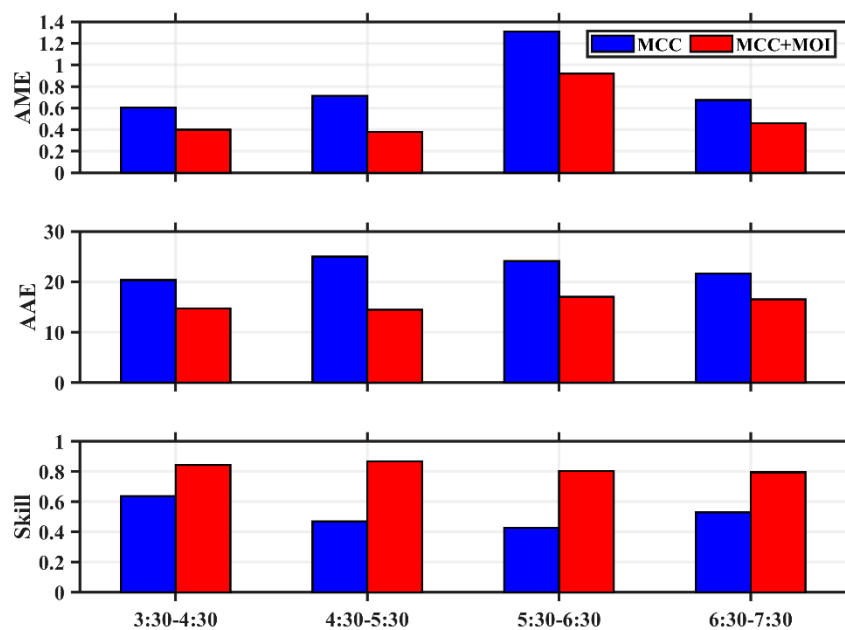


Figure S17. Same as Figure S16, but for 16 September 2013.