Appendix 5: Monthly climatology, Cook Inlet modeled velocity near the surface and the bottom.

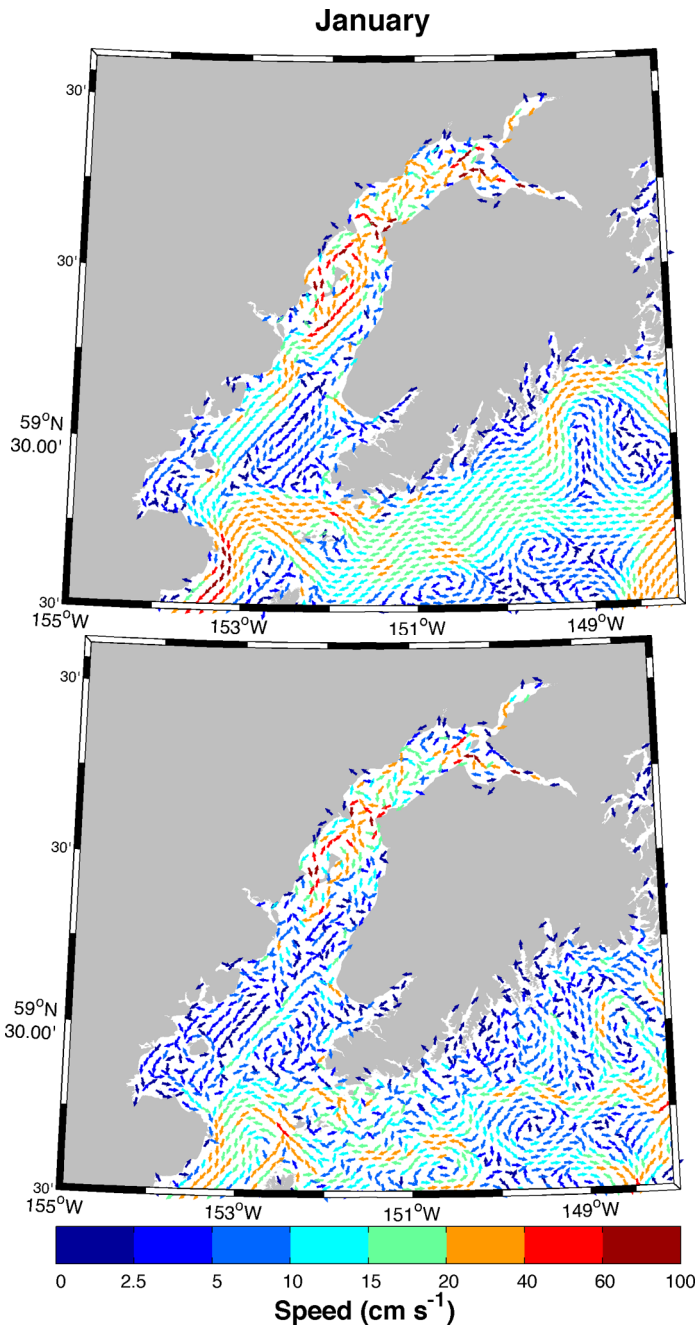

Figure A5.1: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for January in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

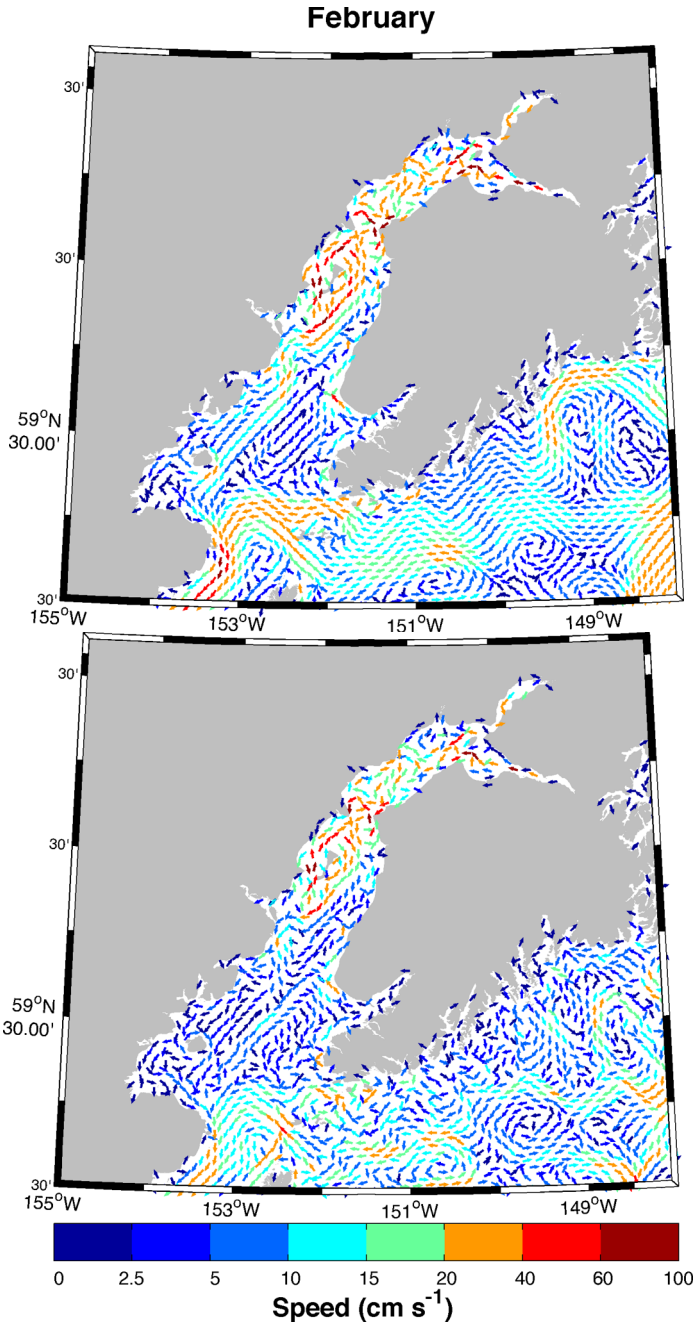

Figure A5.2: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for February in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

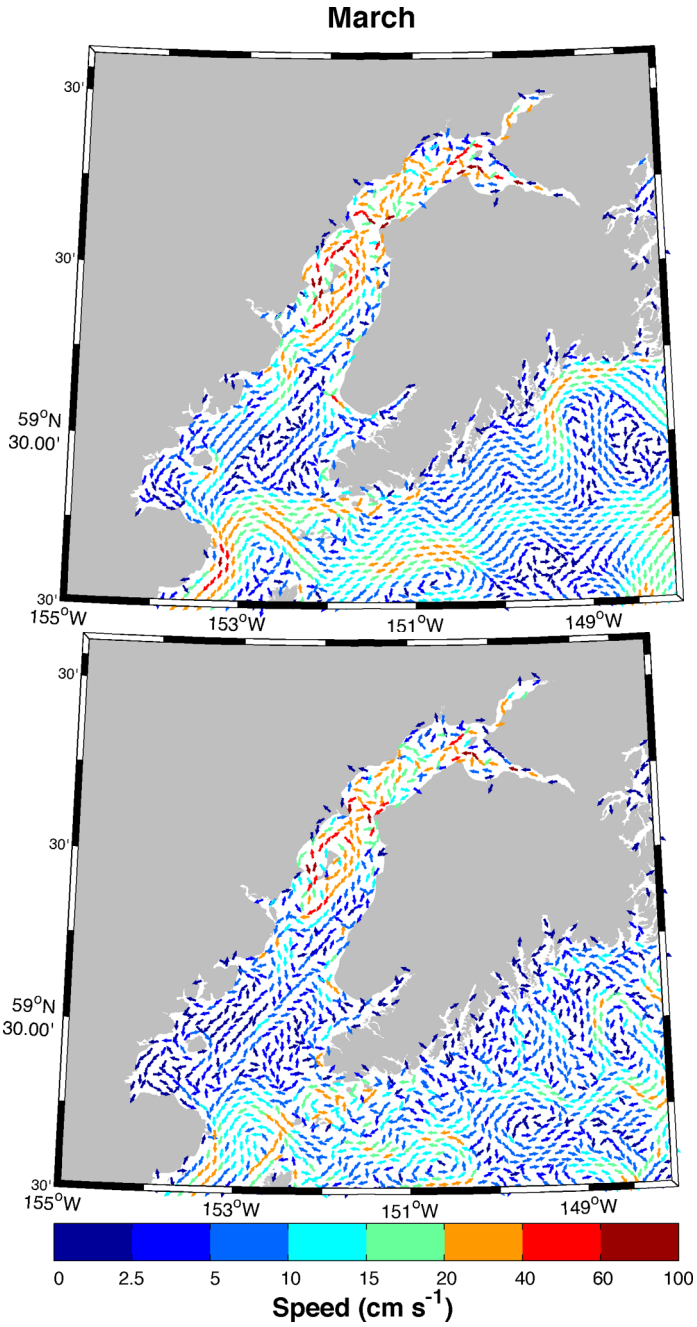

Figure A5.3: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for March in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

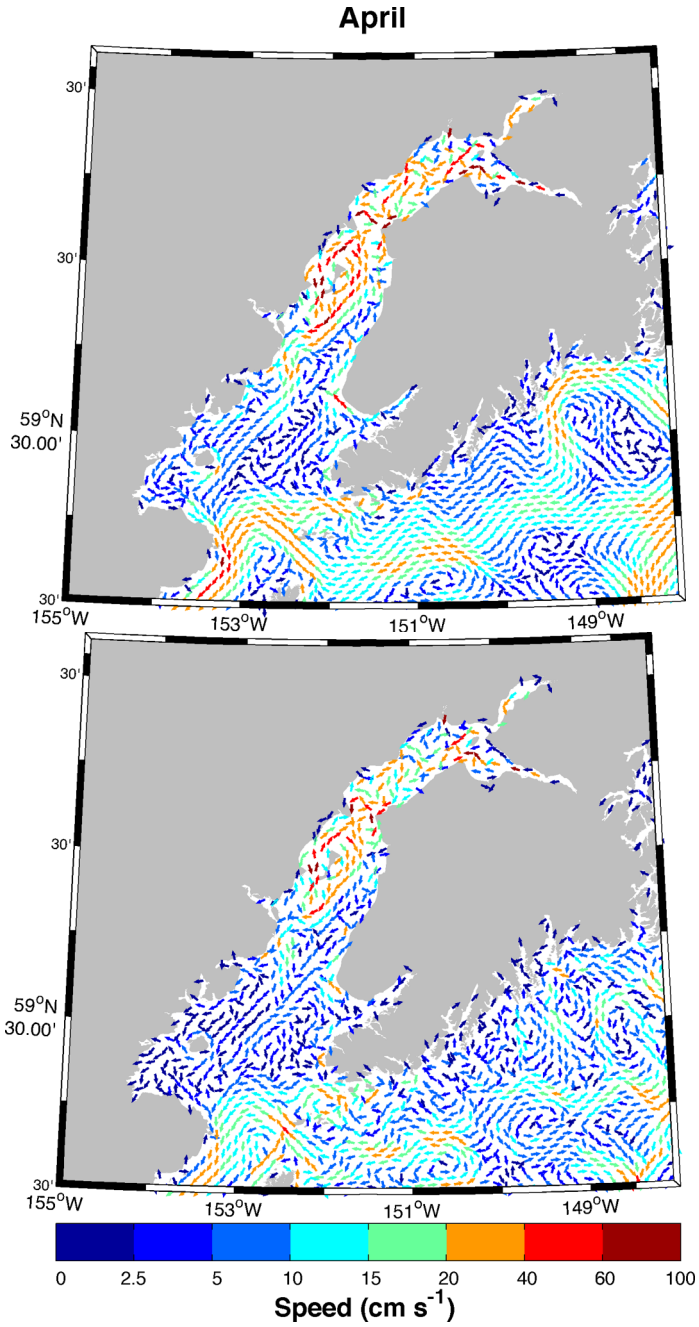

Figure A5.4: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for April in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

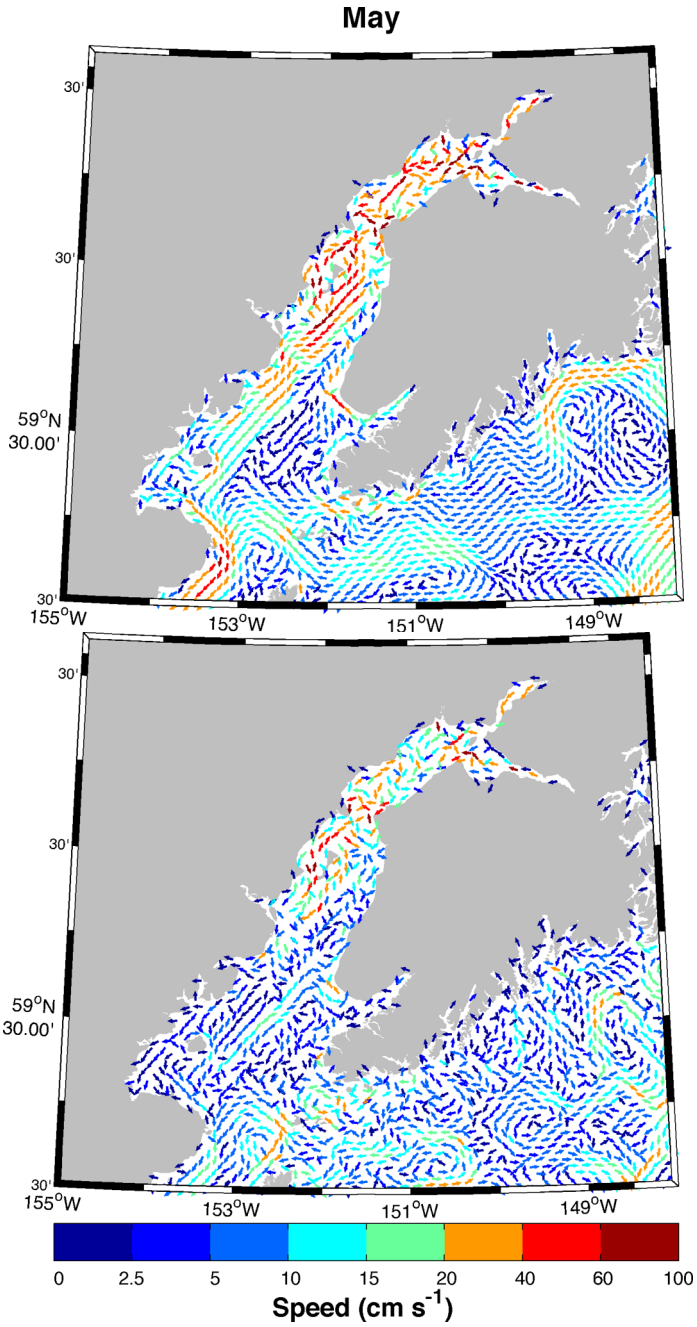

Figure A5.5: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for May in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

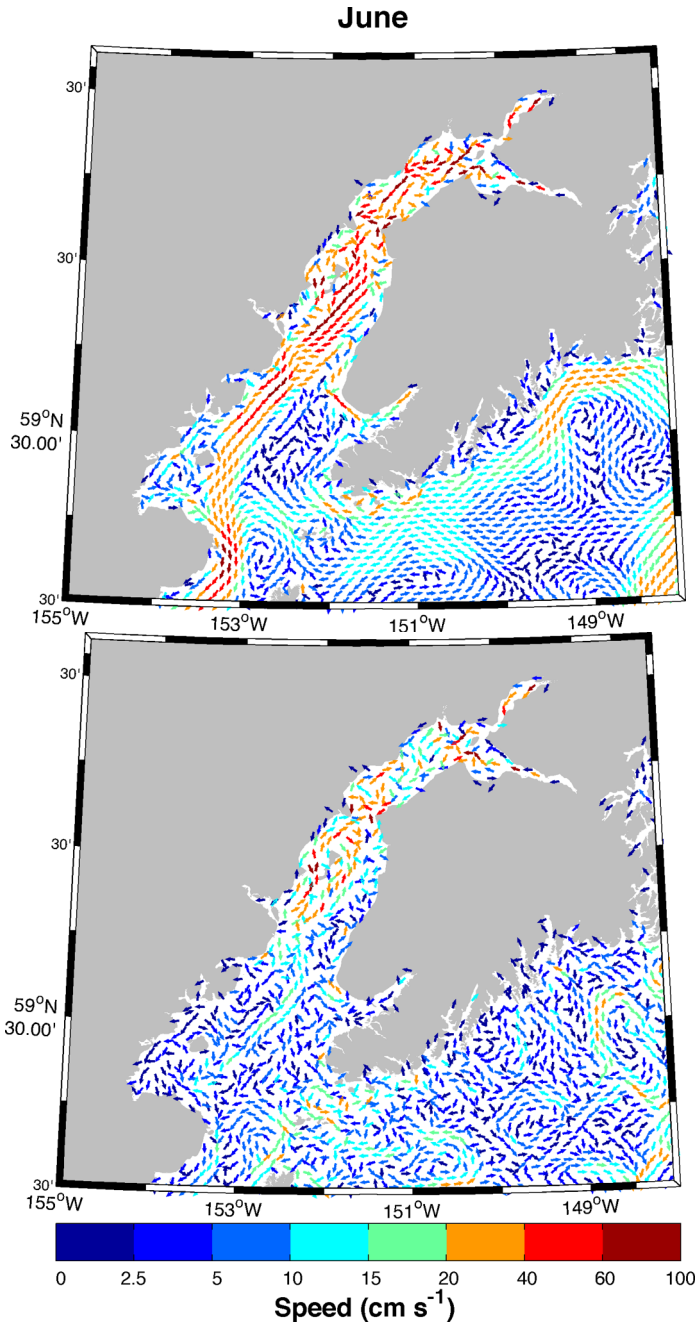

Figure A5.6: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for June in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

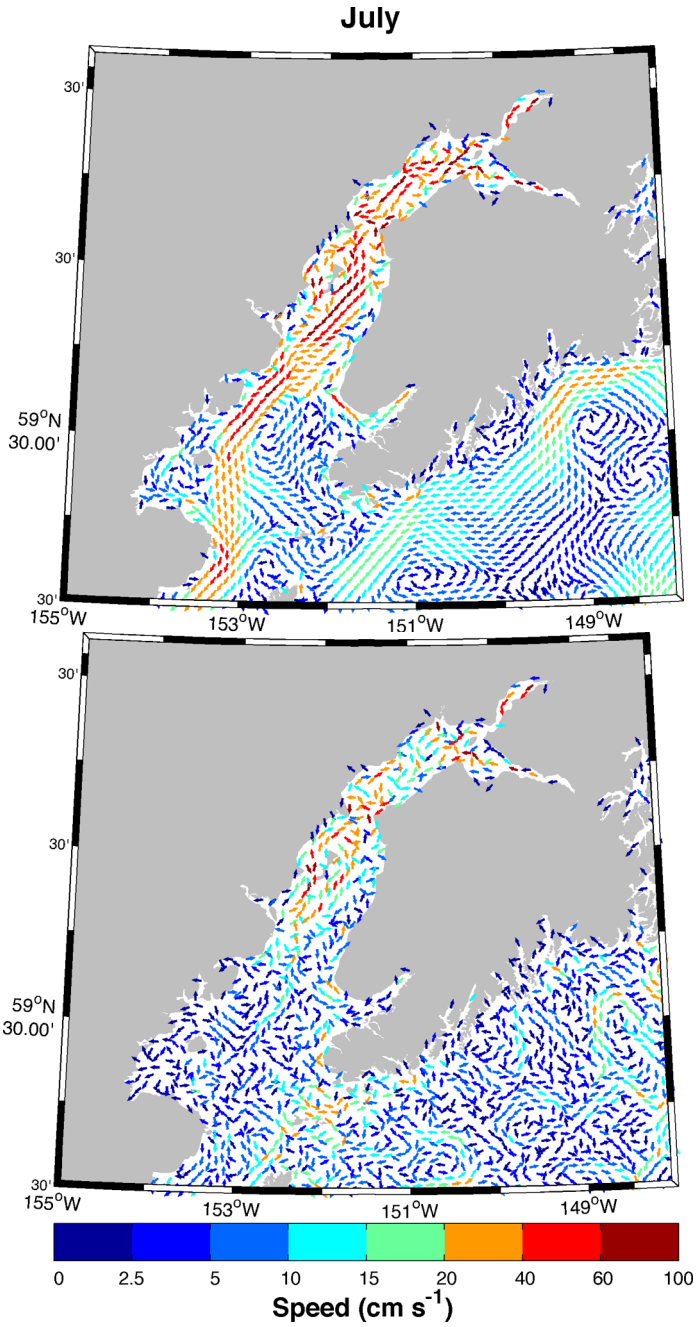

Figure A5.7: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for July in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

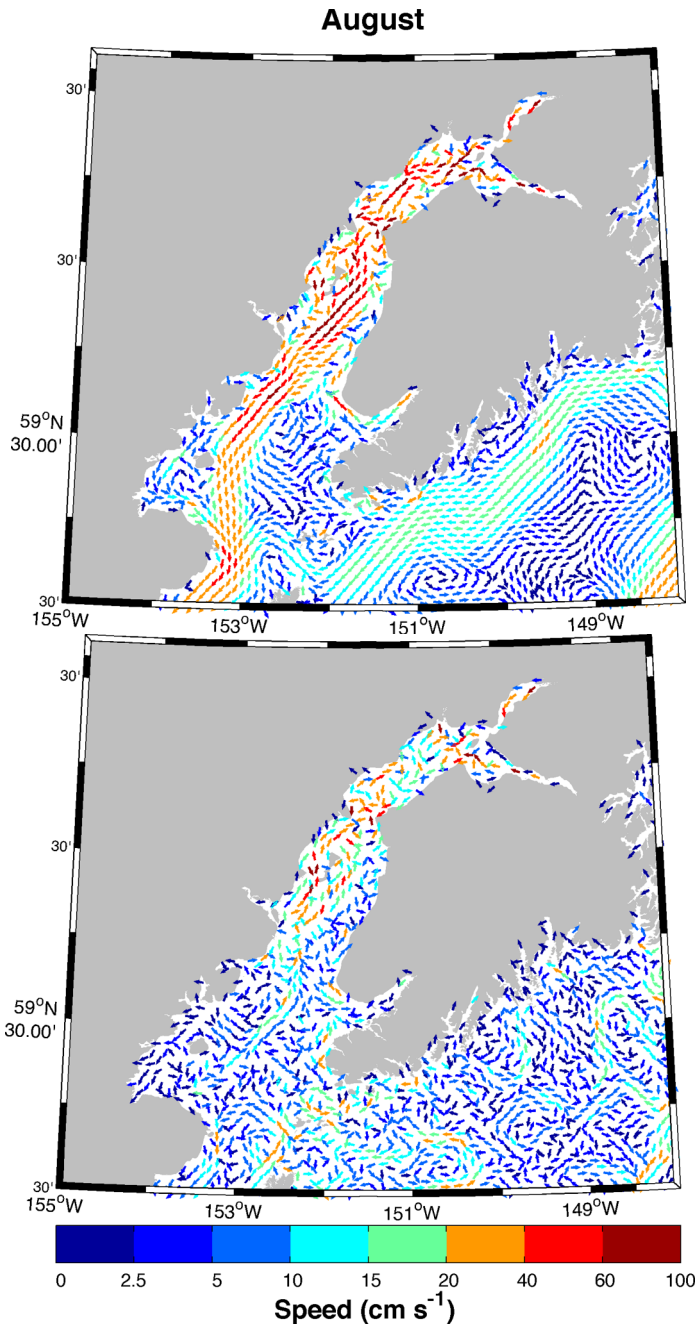

Figure A5.8: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for August in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

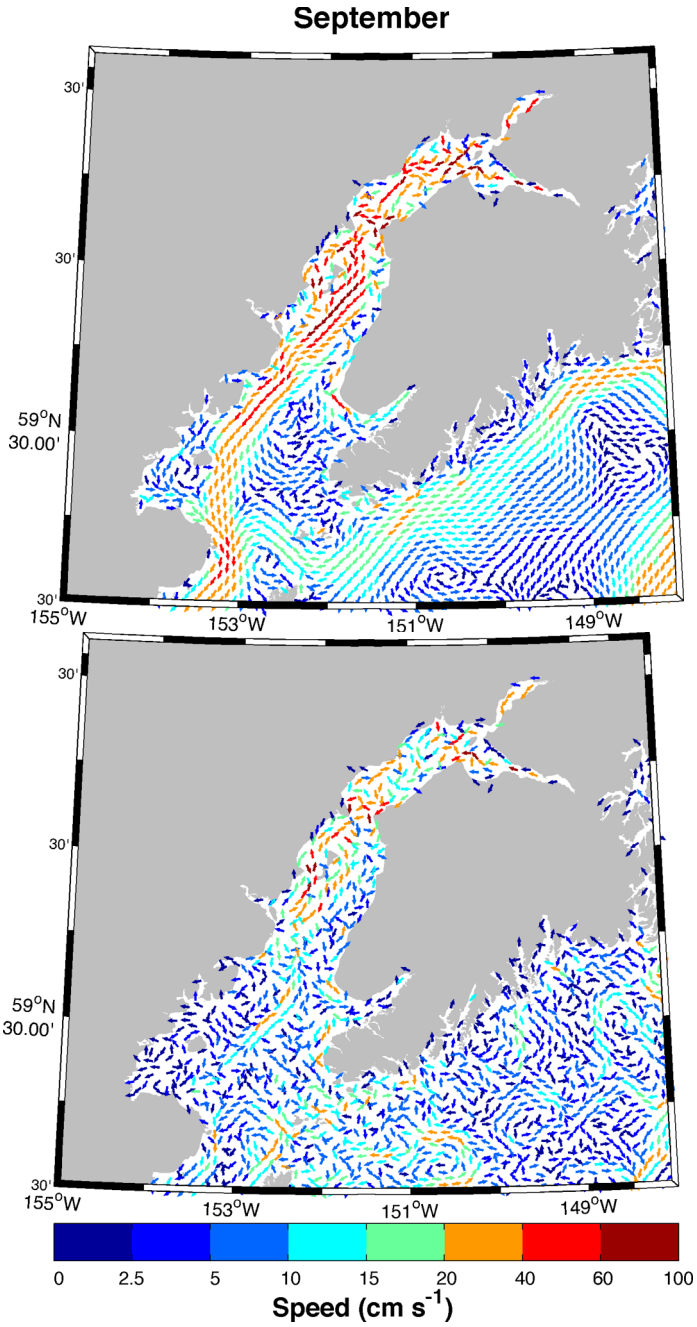

Figure A5.9: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for September in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

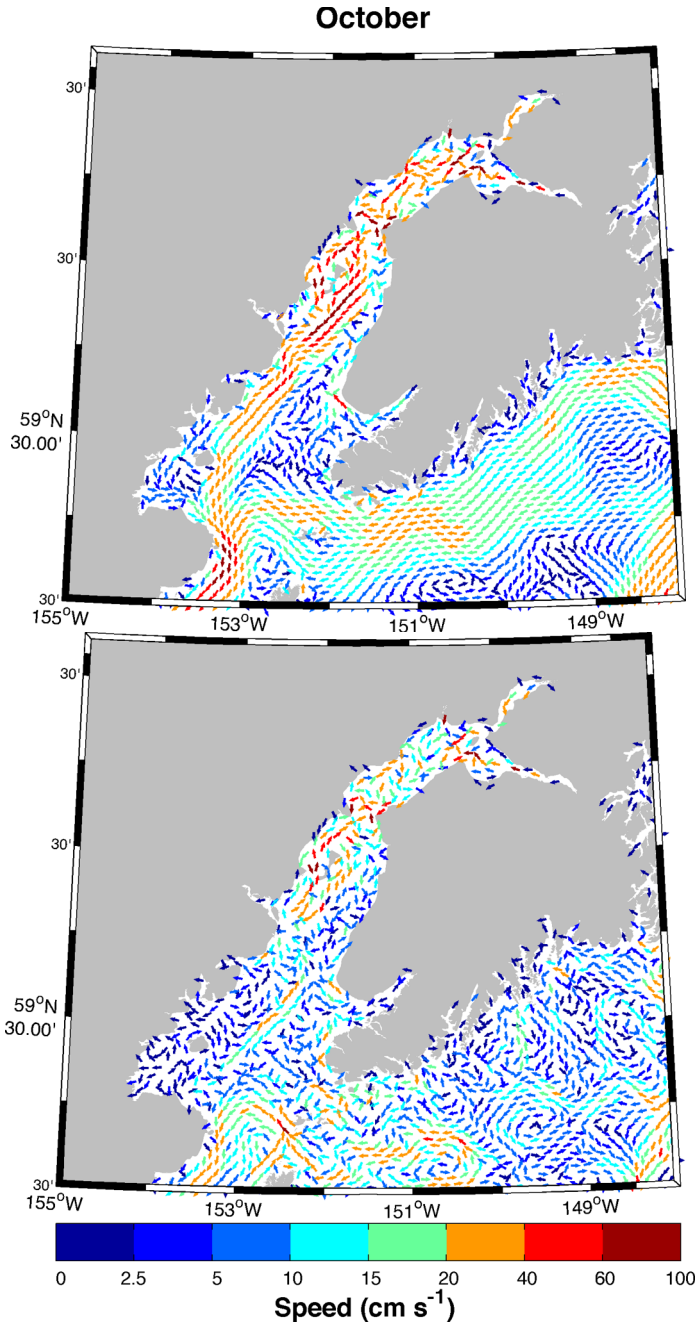

Figure A5.10: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for October in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

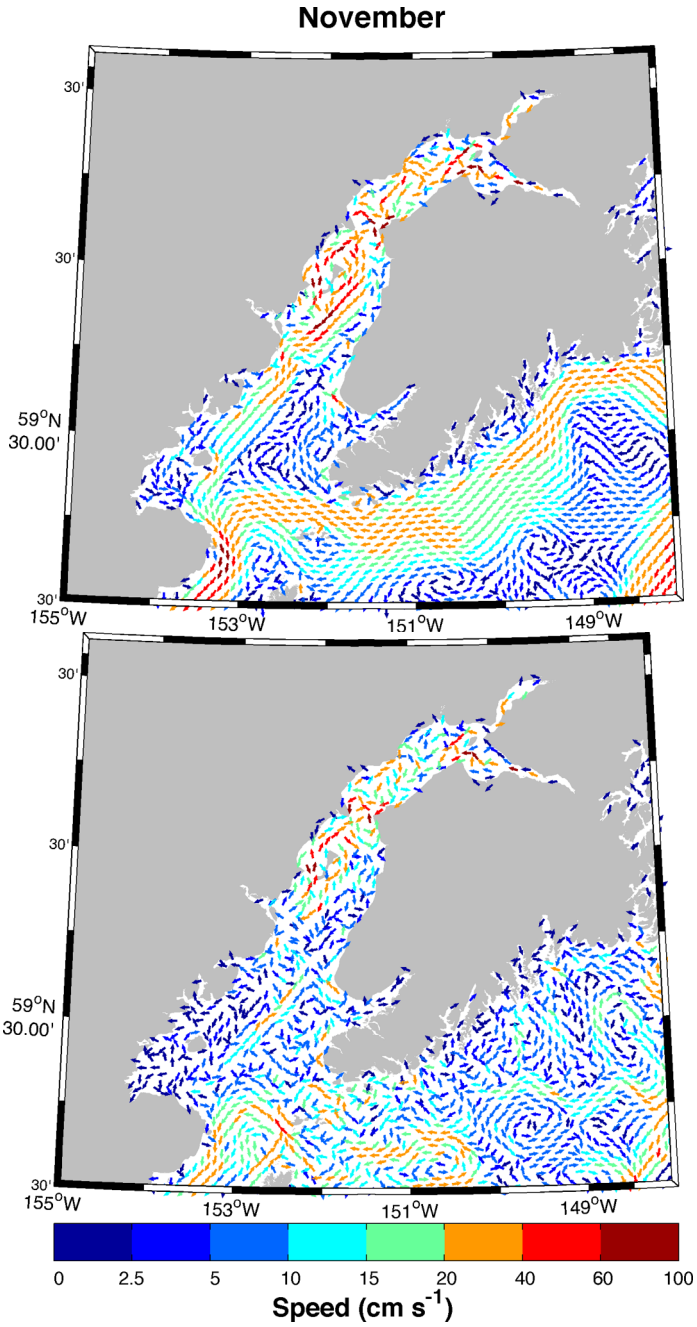

Figure A5.11: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for November. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

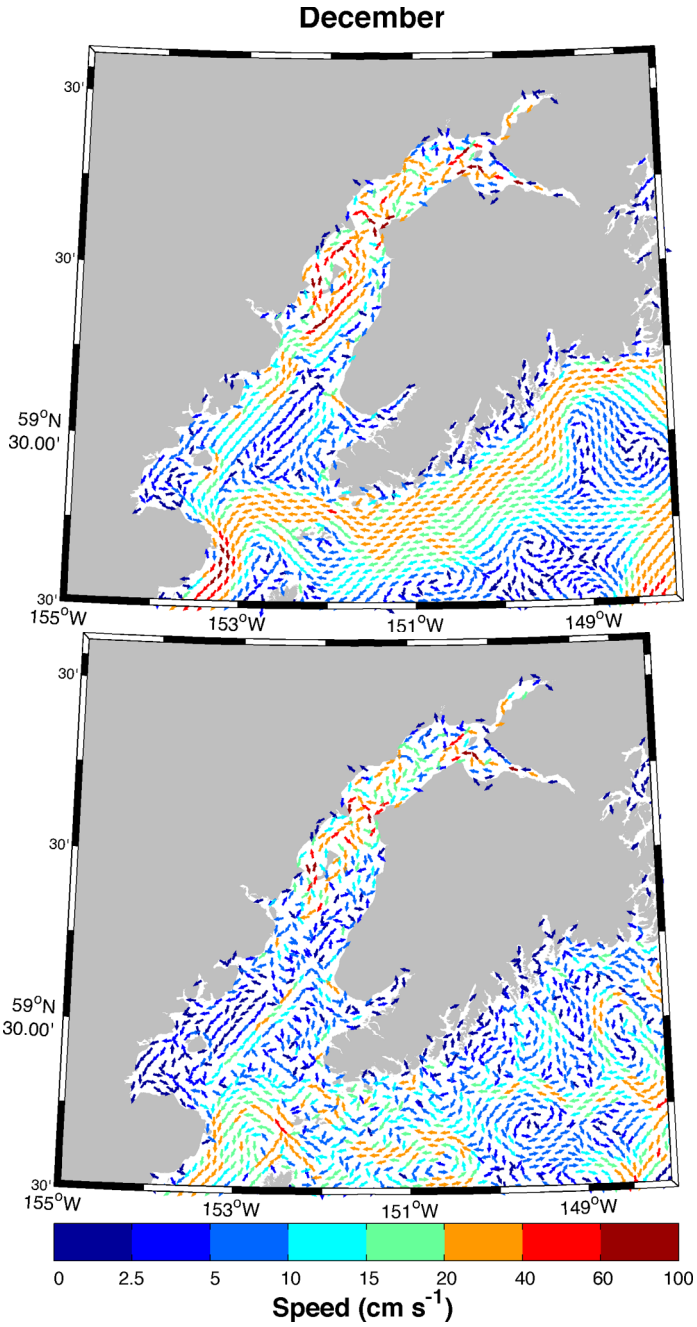

Figure A5.12: Surface (upper) and near-bottom (lower) mean velocity fields over the 10-year hindcast for December in Cook Inlet. Every 9th grid point velocity vector is shown. Arrows denote flow direction and colors denote flow speed in cm s^{-1}.

Appendix 6: Monthly climatology, Cook Inlet modeled sea surface temperature.

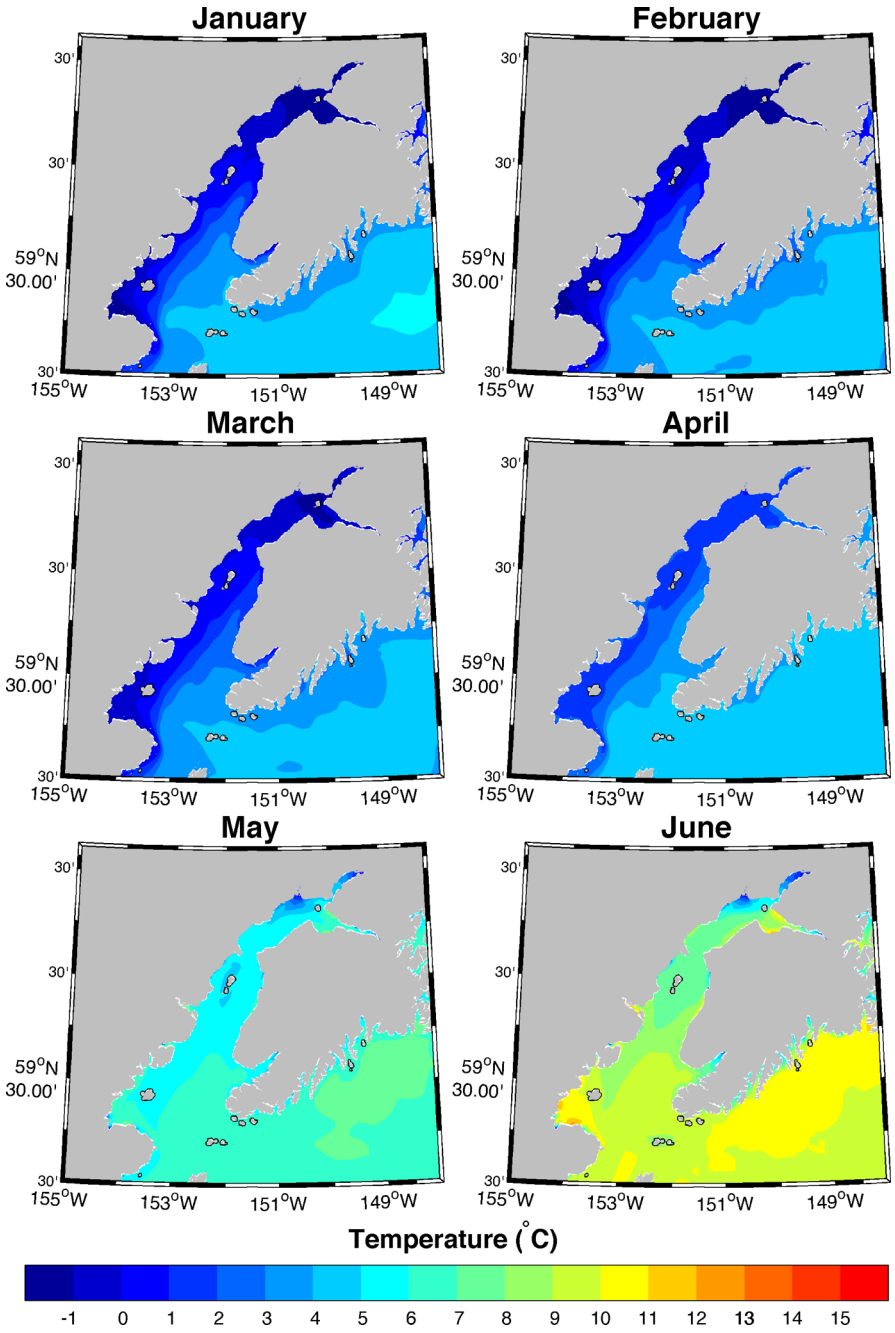

Figure A6.1: Monthly mean sea surface temperature (SST) over the 10-year hindcast for January-June in Cook Inlet.

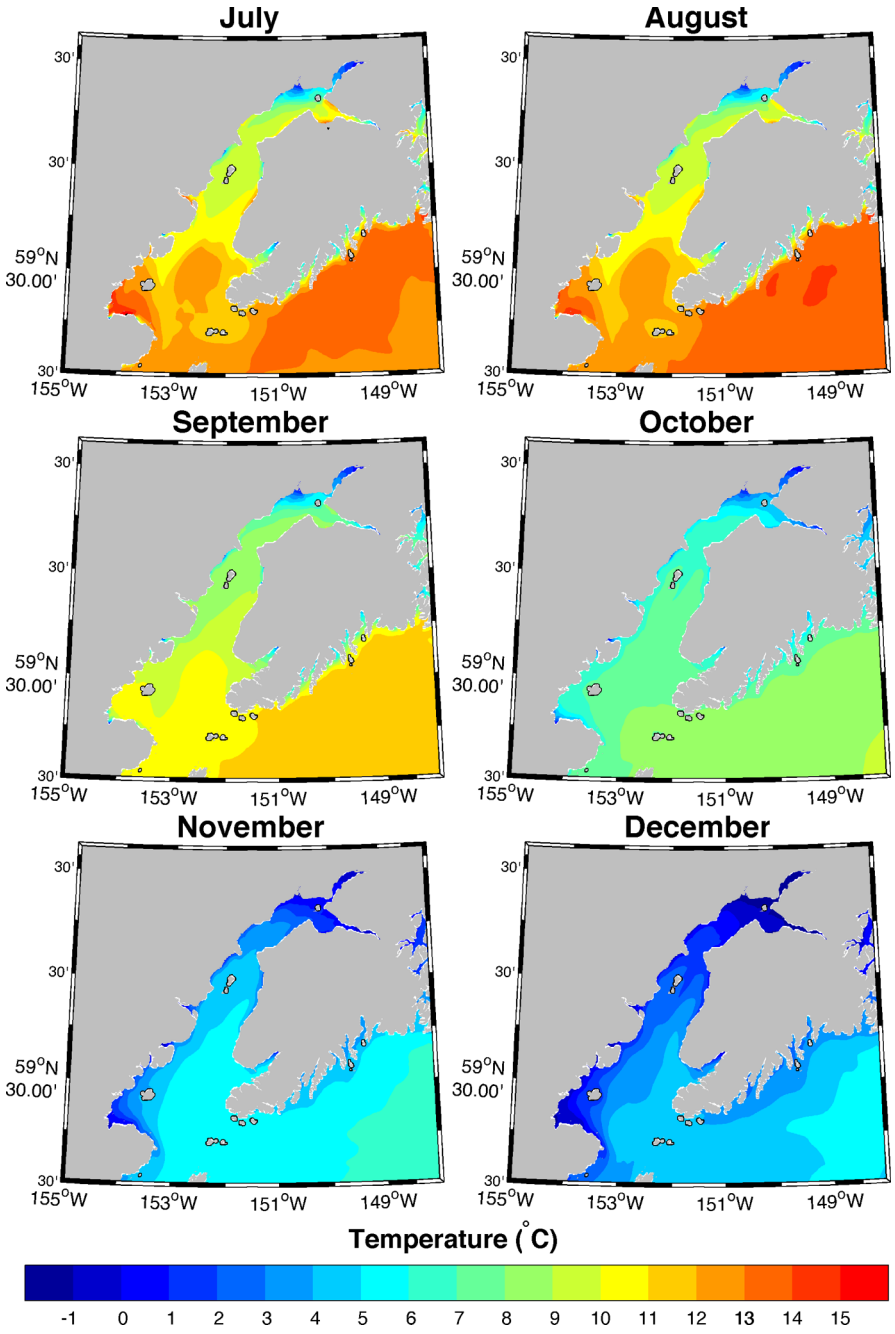

Figure A6.2: Monthly mean sea surface temperature (SST) over the 10-year hindcast for July-December in Cook Inlet.

Appendix 7: Monthly climatology, Cook Inlet modeled sea surface salinity.

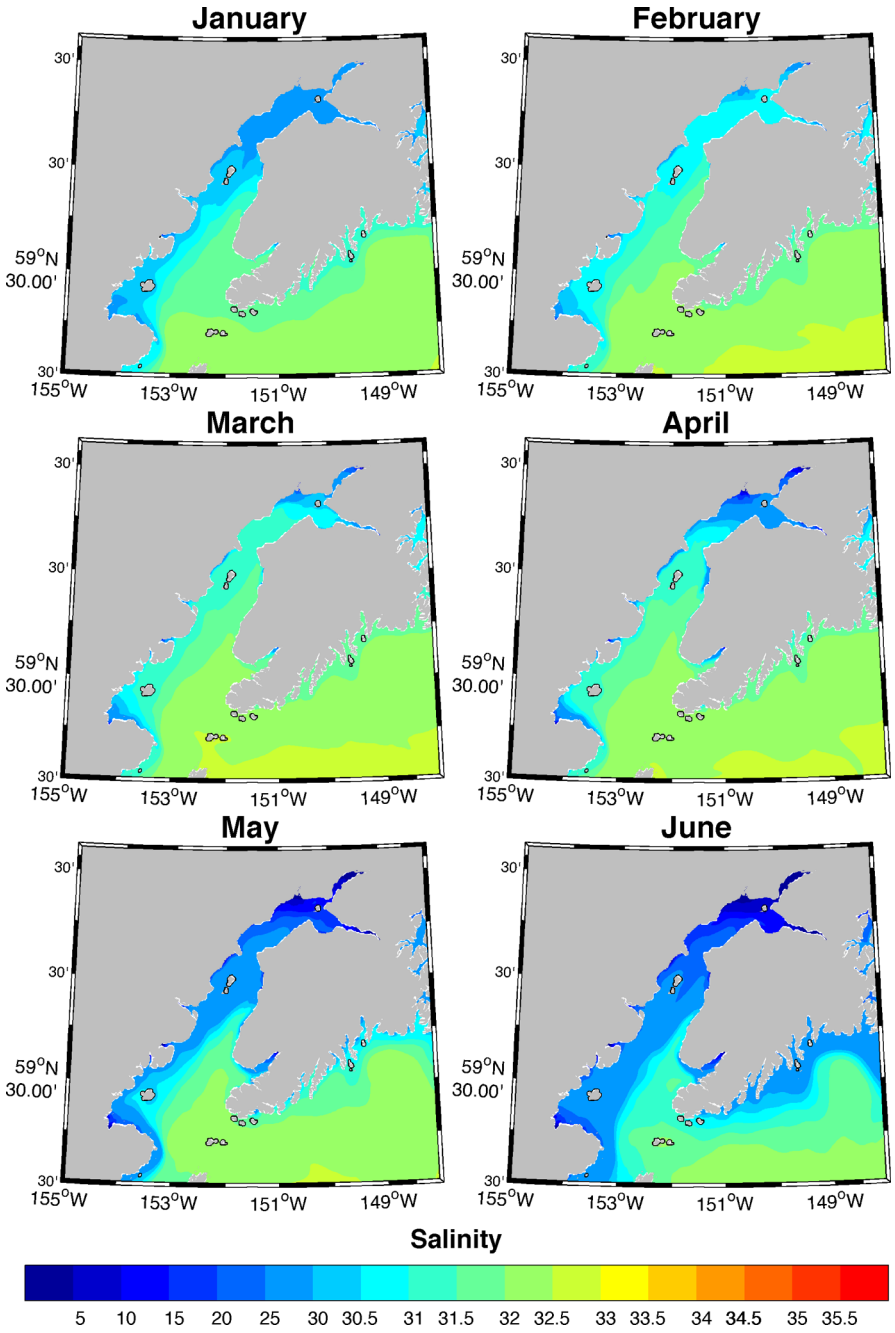

Figure A7.1: Monthly mean sea surface salinity (SSS) over the 10-year hindcast for January-June in Cook Inlet.

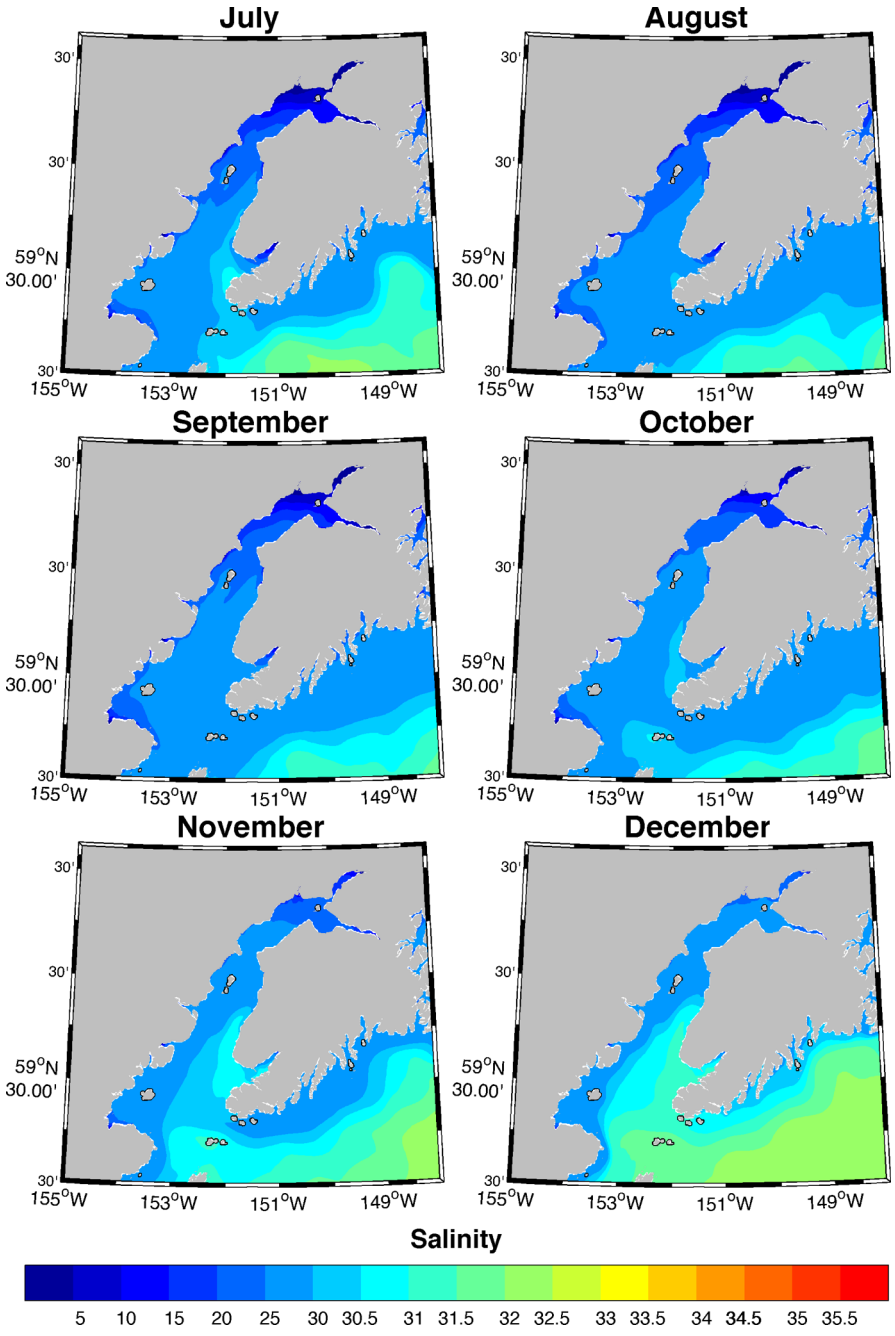

Figure A7.2: Monthly mean sea surface temperature (SST) over the 10-year hindcast for July-December in Cook Inlet.

Appendix 8: Modeled and Observed Hydrographic Transects

The figures in this Appendix show in-situ CTD data, model hindcasts at each station for the year, month, day and hour closest to which the CTD profiles were each collected, and the difference between the two.

Temperature contours occur every 1.0 °C from -2 °C to +16°C. Salinity contours occur every 5 salinity units from 0 to 30 and then every 0.5 units from 30 to 36. In the difference plots, white shading denotes differences smaller than 0.5 °C and 0.5 salinity units. The lightest shading indicated differences between 0.5 and 1 (for both temperature and salinity).

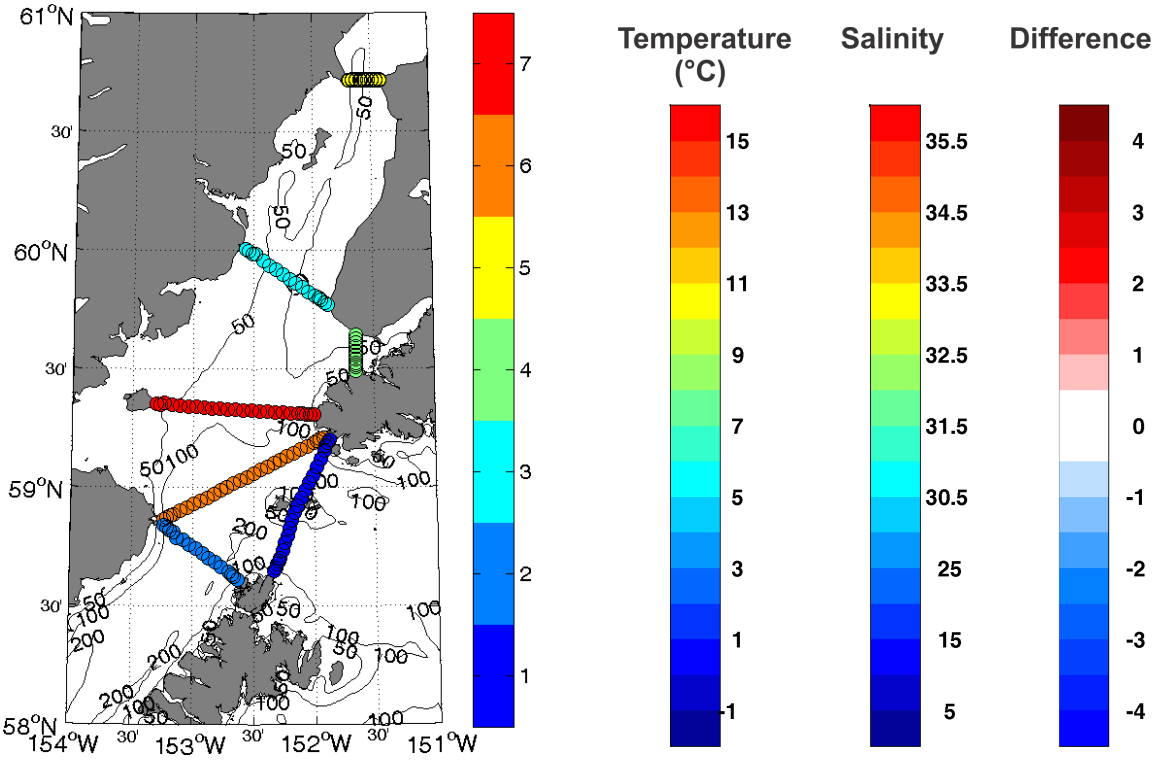

Figure A8.0 Map at left: Locations of seven repeat CTD transects [*Okkonen et al.*, 2009] in lower Cook Inlet, Kennedy-Stevenson Entrances and upper Shelikof Strait used for model-data comparisons. The CTDs of each transect are plotted with circles that are color-coded based on transect number shown with the associated colorbar. Three colorbars at right: Color contour legends for all temperature, salinity and difference fields shown below in Figures A8.1 through A8.79.

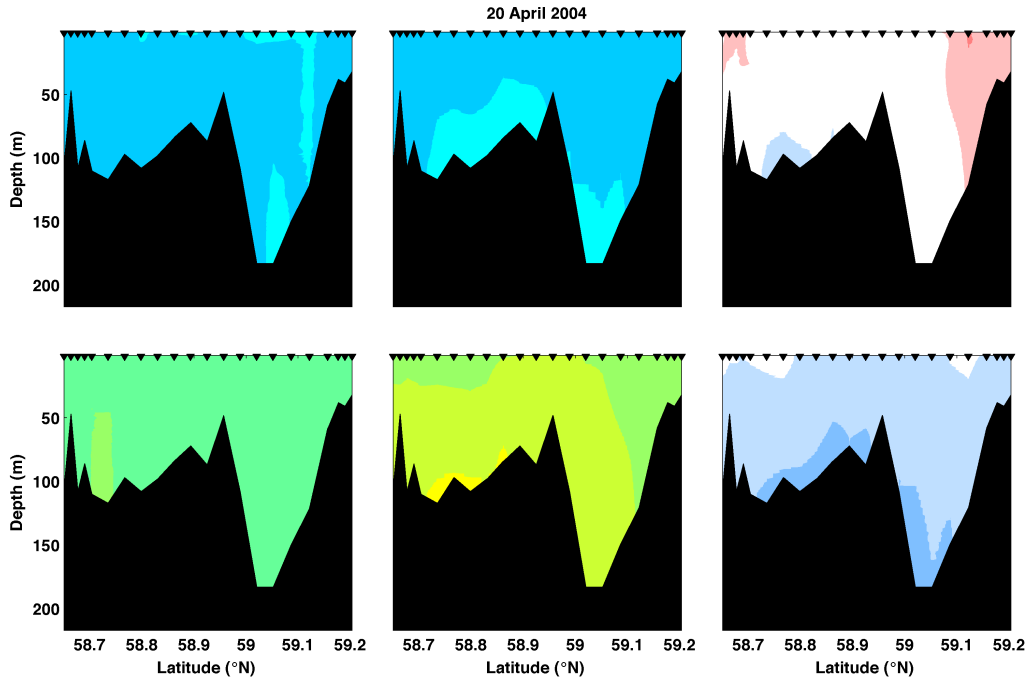

Figure A8.1: Transcect 1.01 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

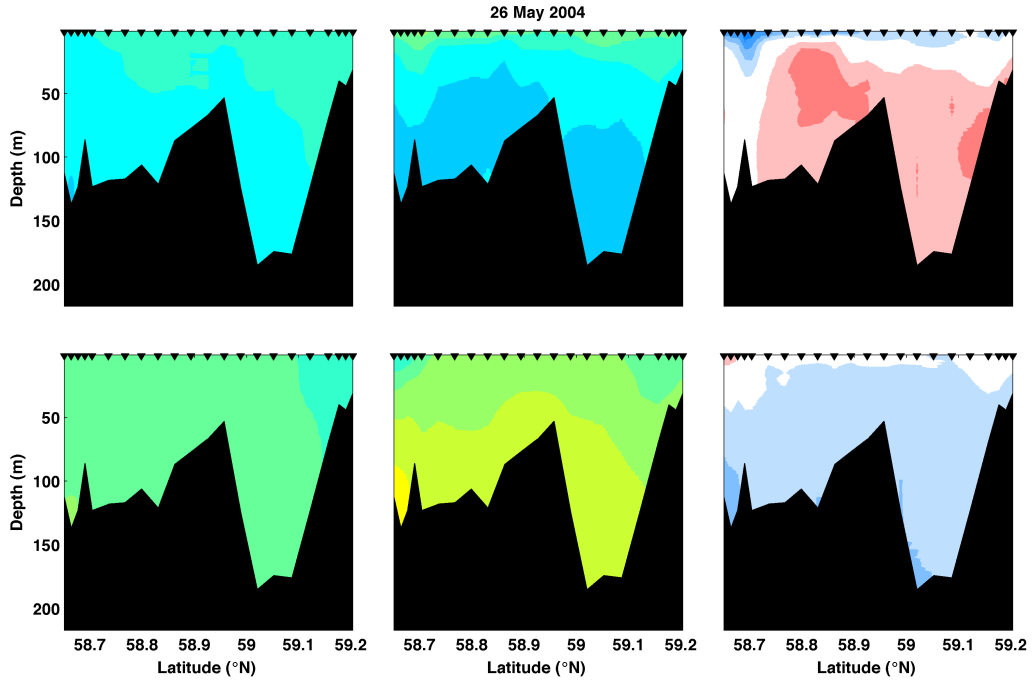

Figure A8.2: Transcect 1.02 model-data comparison for temperature (top), salinity (bottom),with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

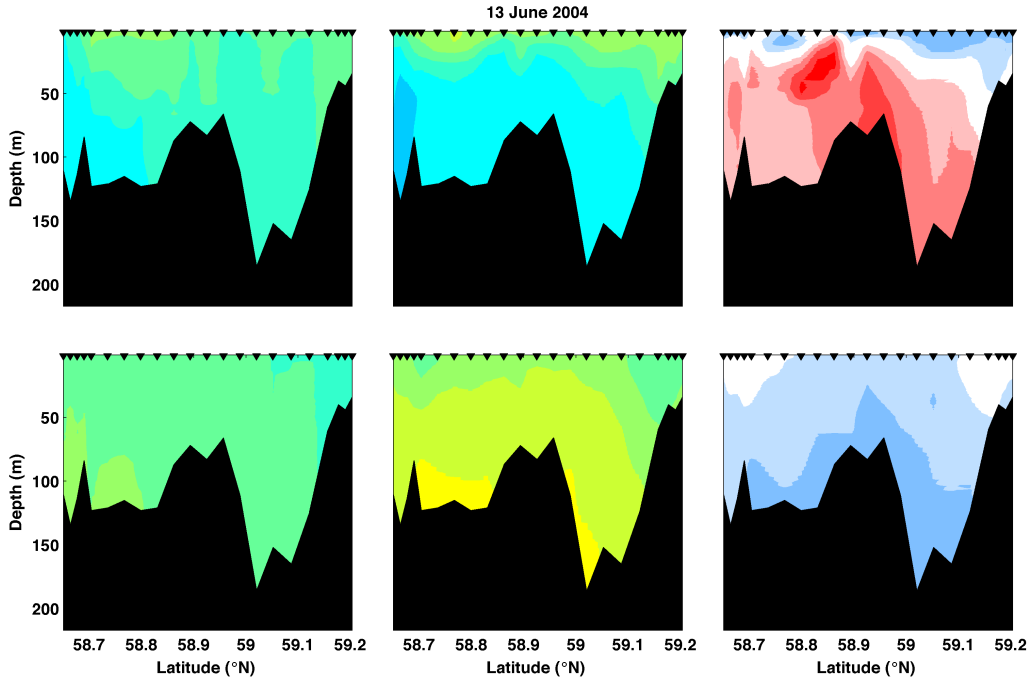

Figure A8.3: Transect 1.03 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

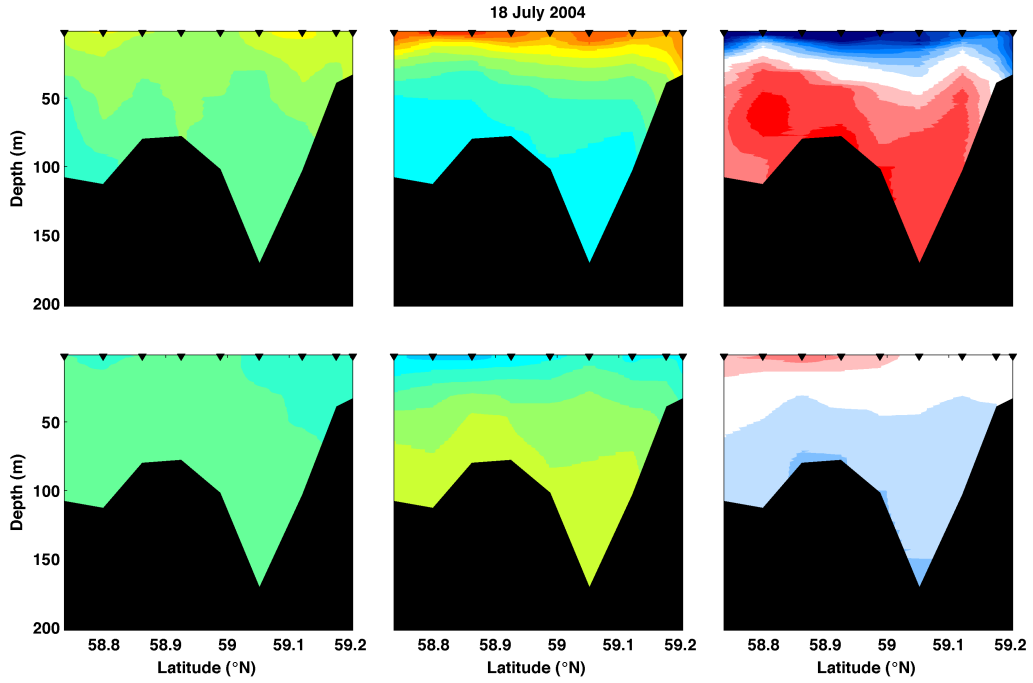

Figure A8.4: Transect 1.04 model-data comparison for temperature (top), salinity (bottom), with the

observations shown on the left, the model in the center and the difference (observations-model) on the right.

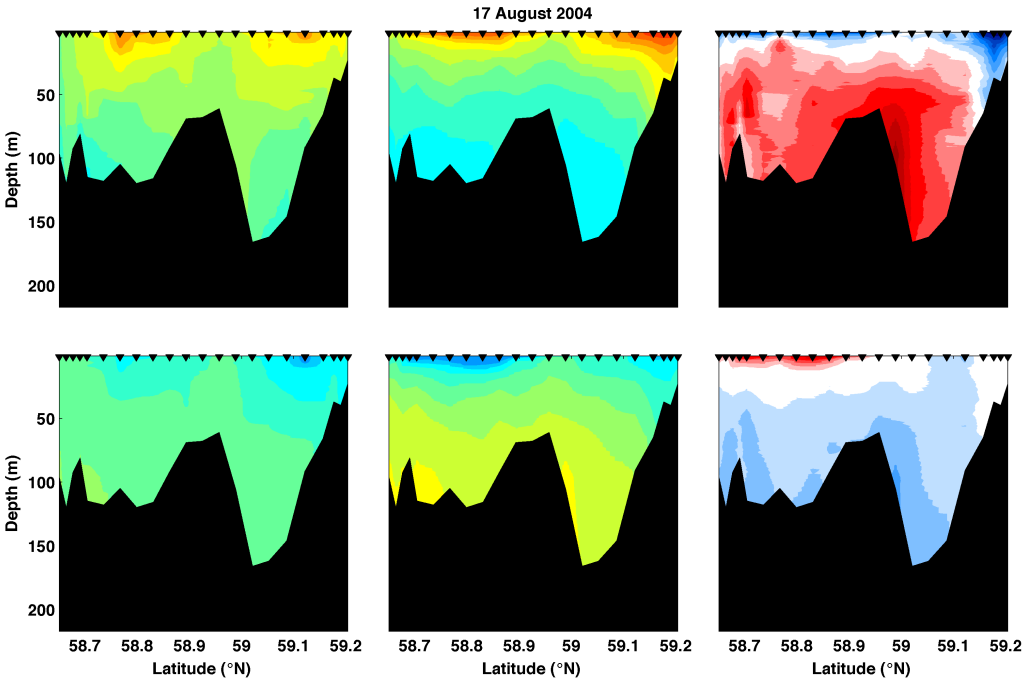

Figure A8.5: Transect 1.05 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

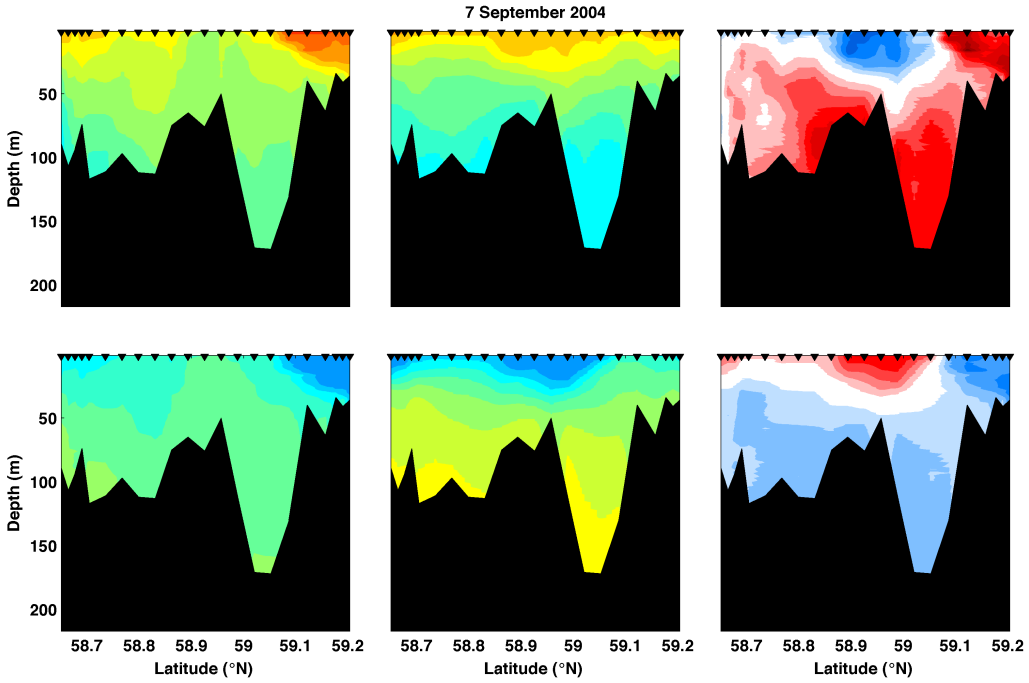

Figure A8.6: Transect 1.06 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

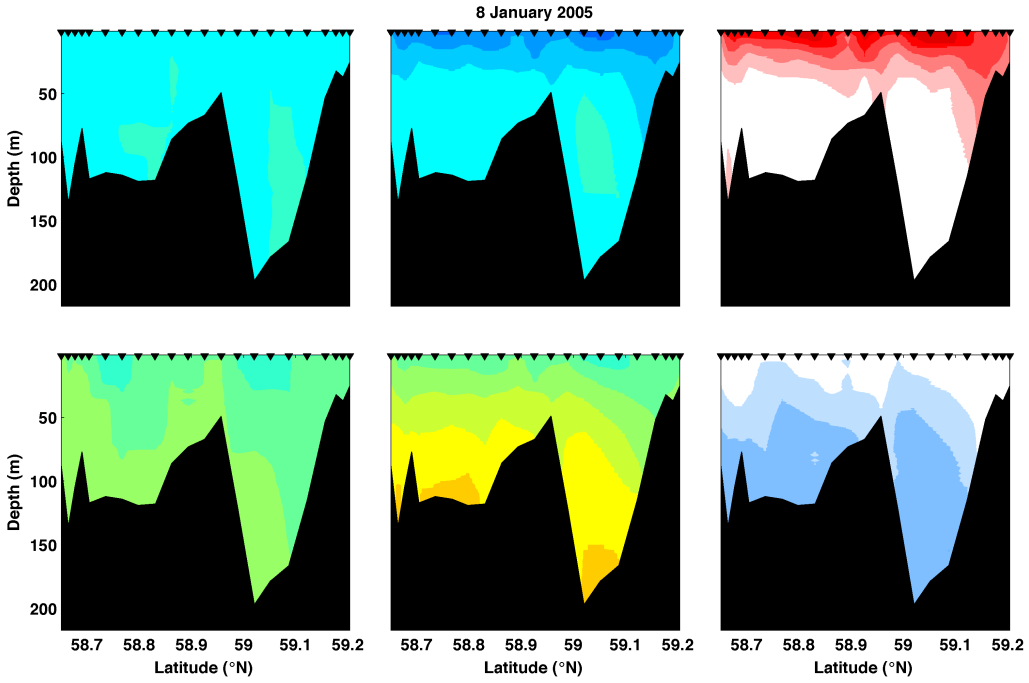

Figure A8.7: Transect 1.07 model-data comparison for temperature (top), salinity (bottom), with the

observations shown on the left, the model in the center and the difference (observations-model) on the right.

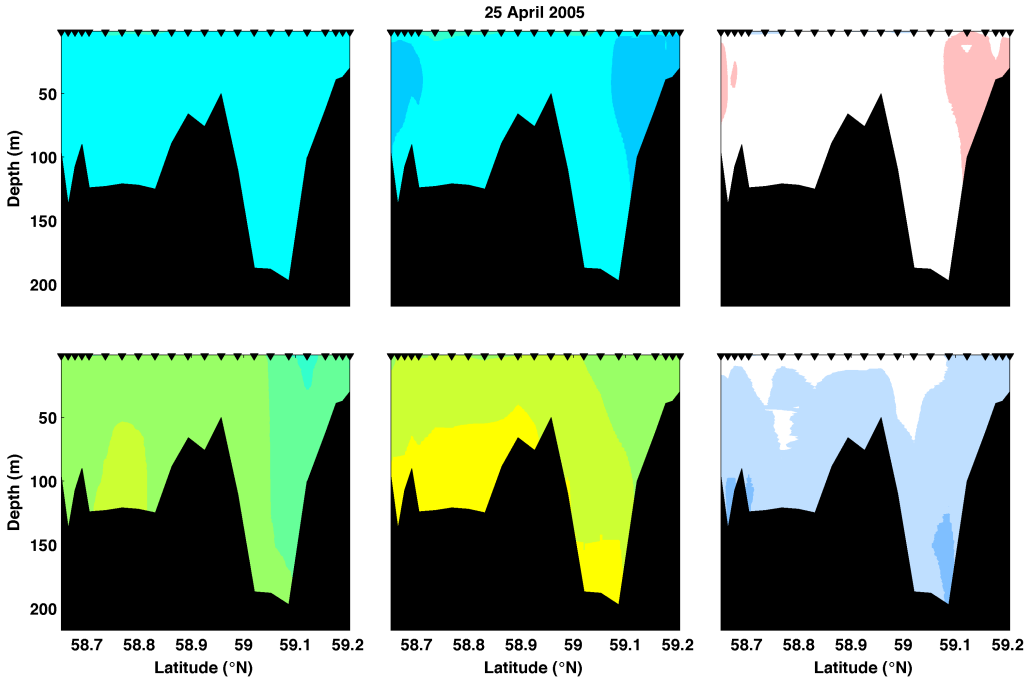

Figure A8.8: Transect 1.08 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

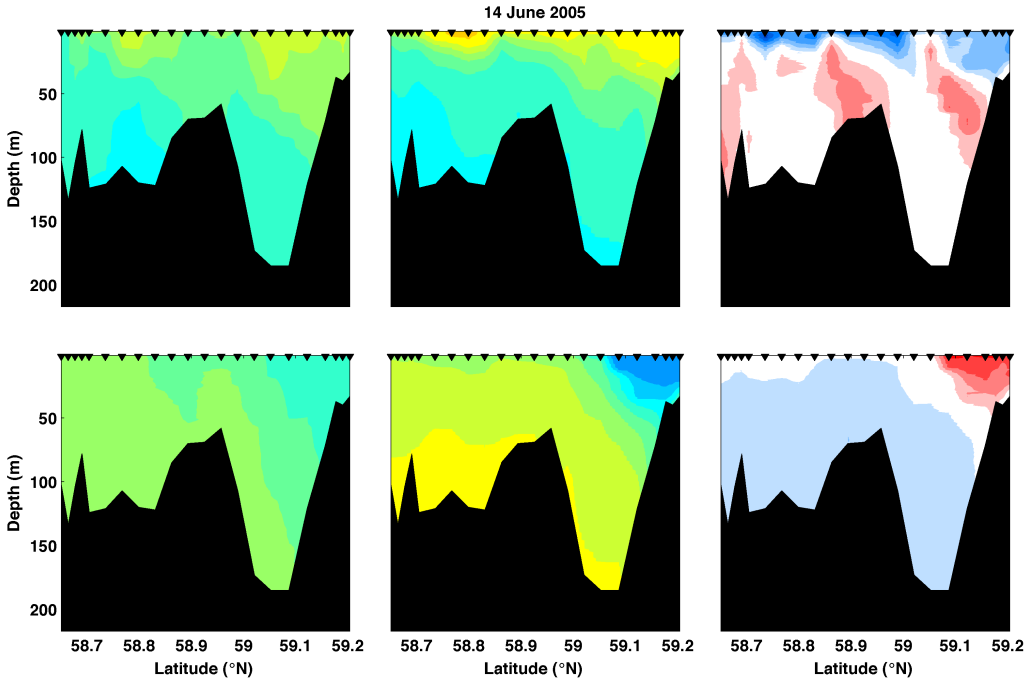

Figure A8.9: Transect 1.09 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

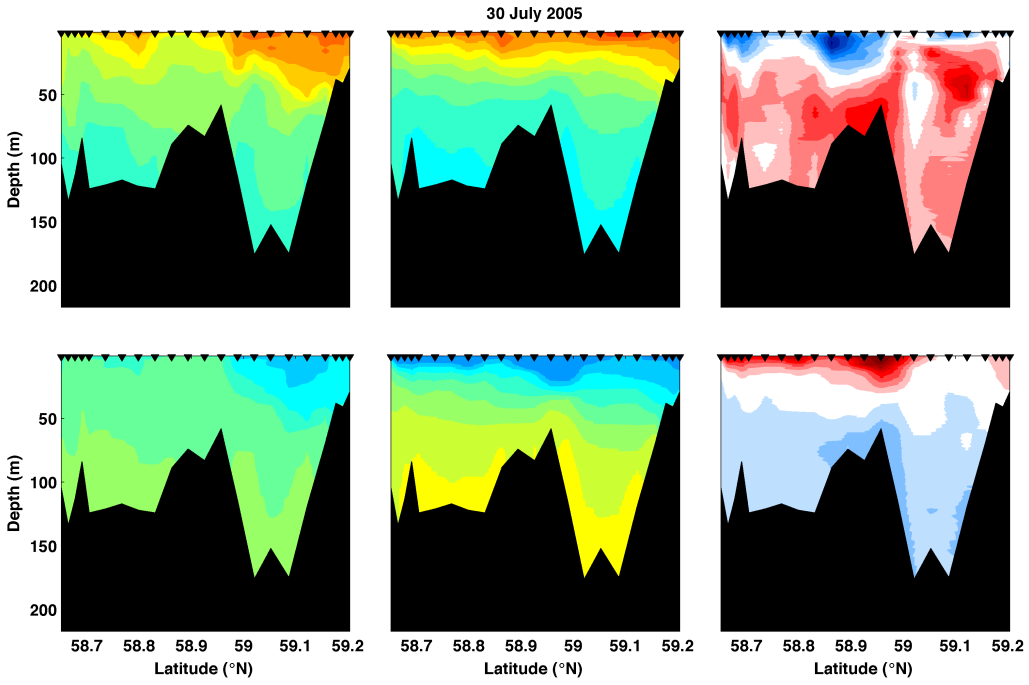

Figure A8.10: Transect 1.10 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

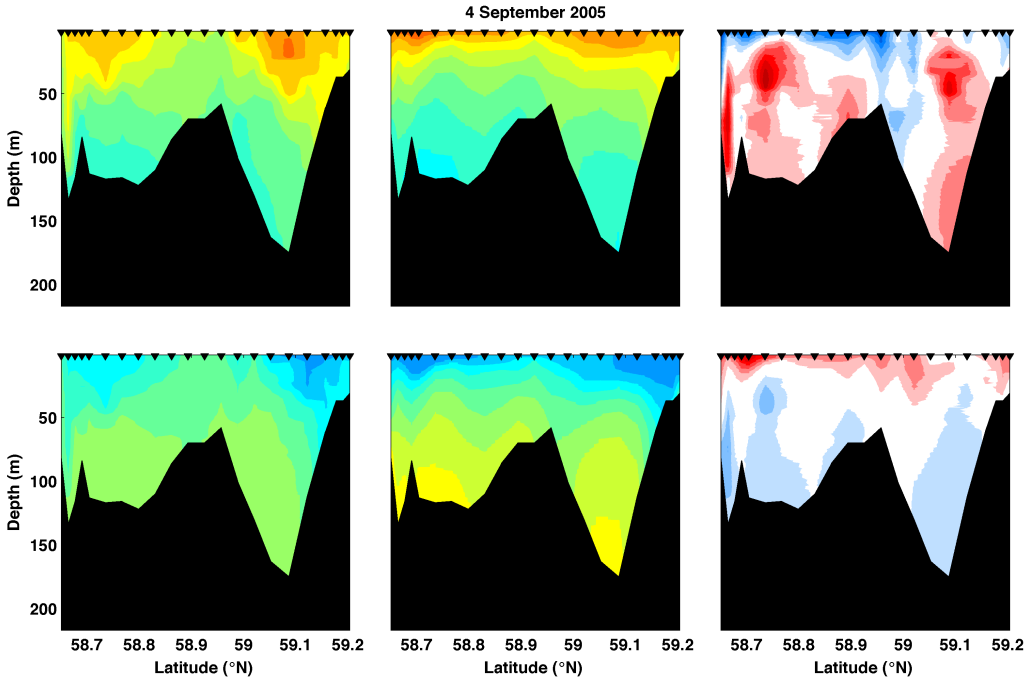

Figure A8.11: Transect 1.11 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

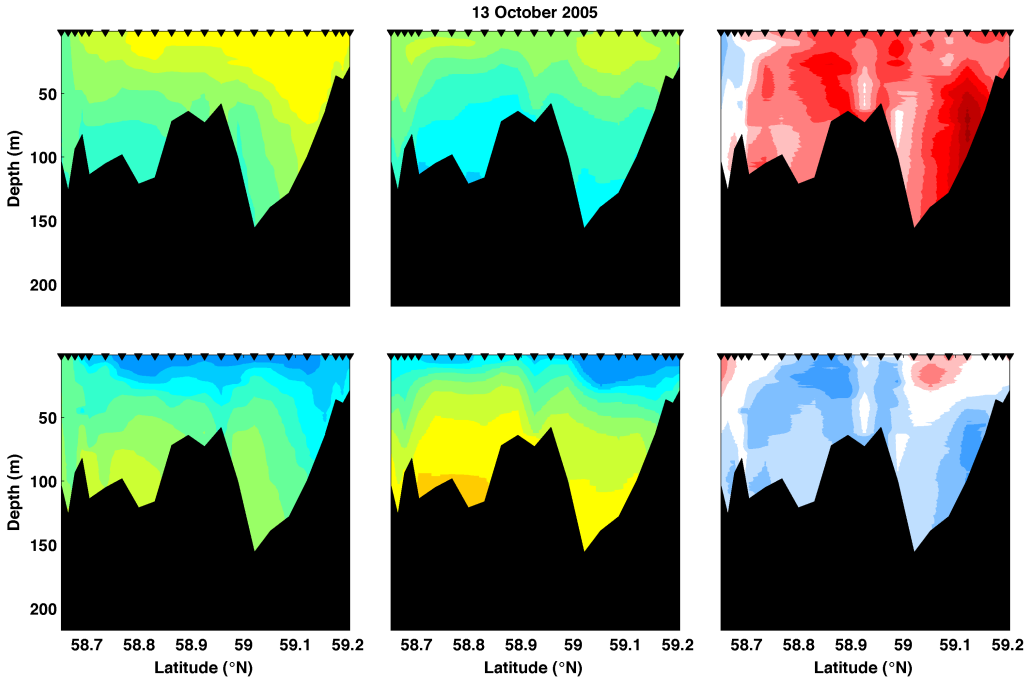

Figure A8.12: Transect 1.12 model-data comparison for temperature (top), salinity (bottom), with the

observations shown on the left, the model in the center and the difference (observations-model) on the right.

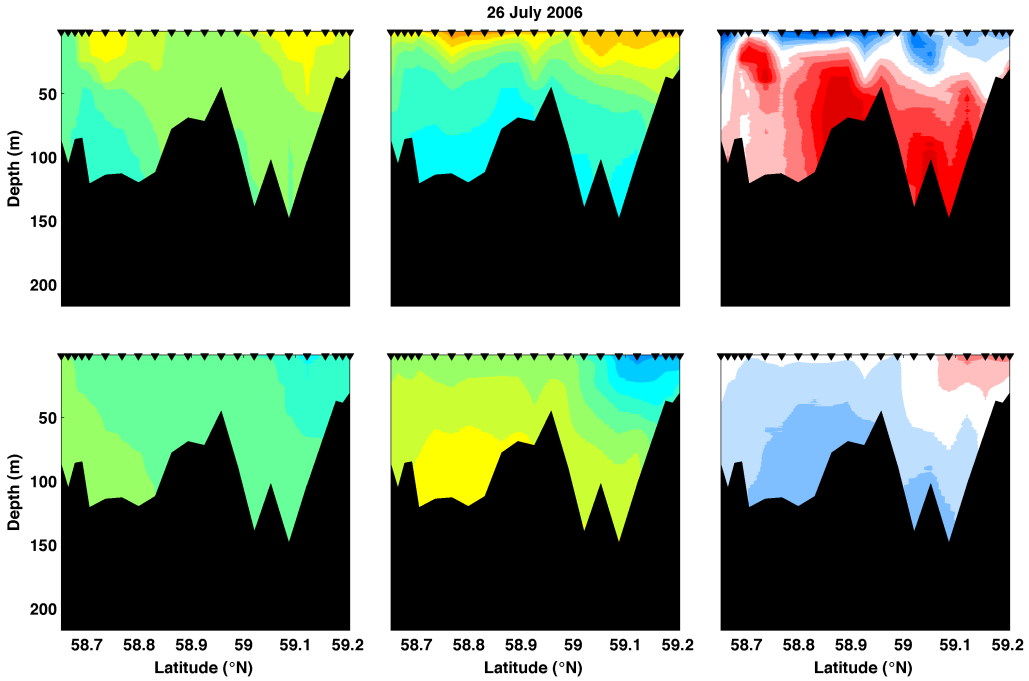

Figure A8.13: Transect 1.13 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

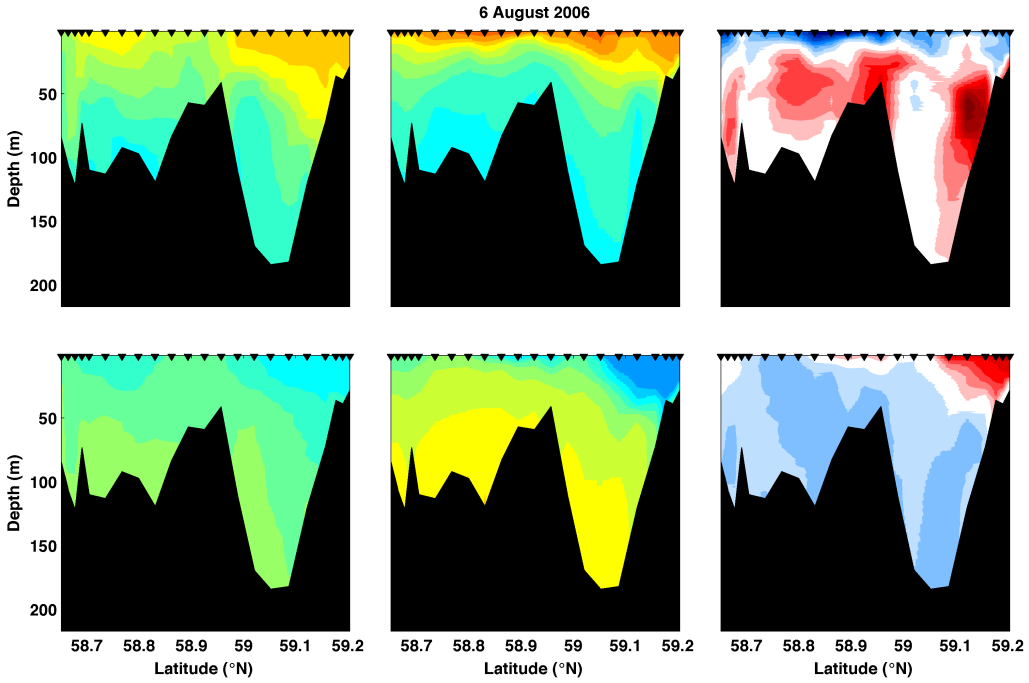

Figure A8.14: Transect 1.14 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

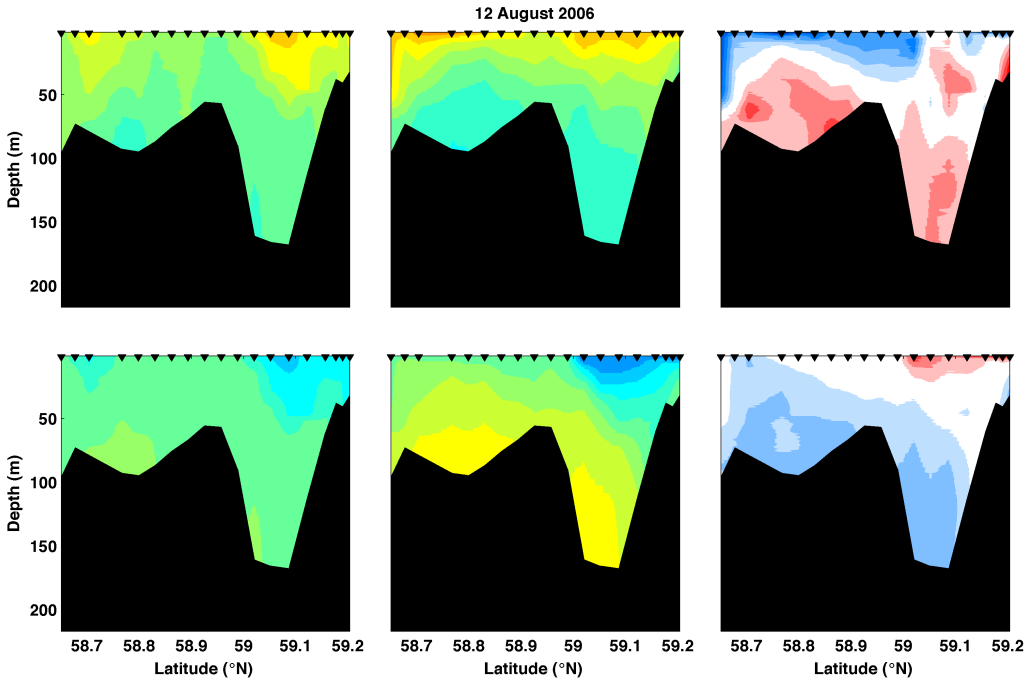

Figure A8.15: Transect 1.15 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

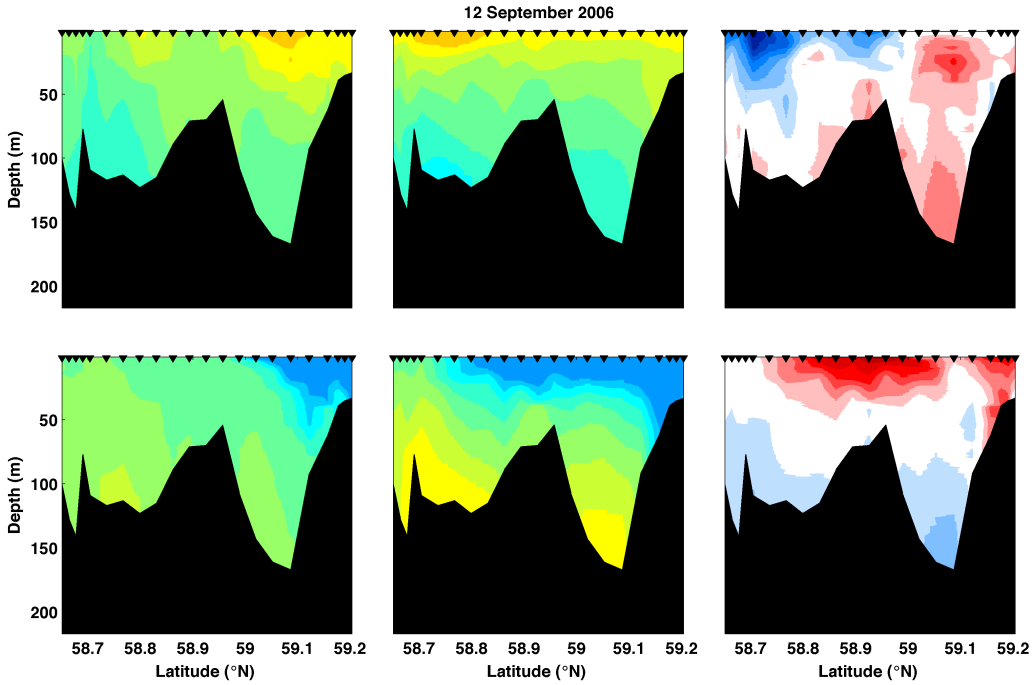

Figure A8.16: Transect 1.16 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

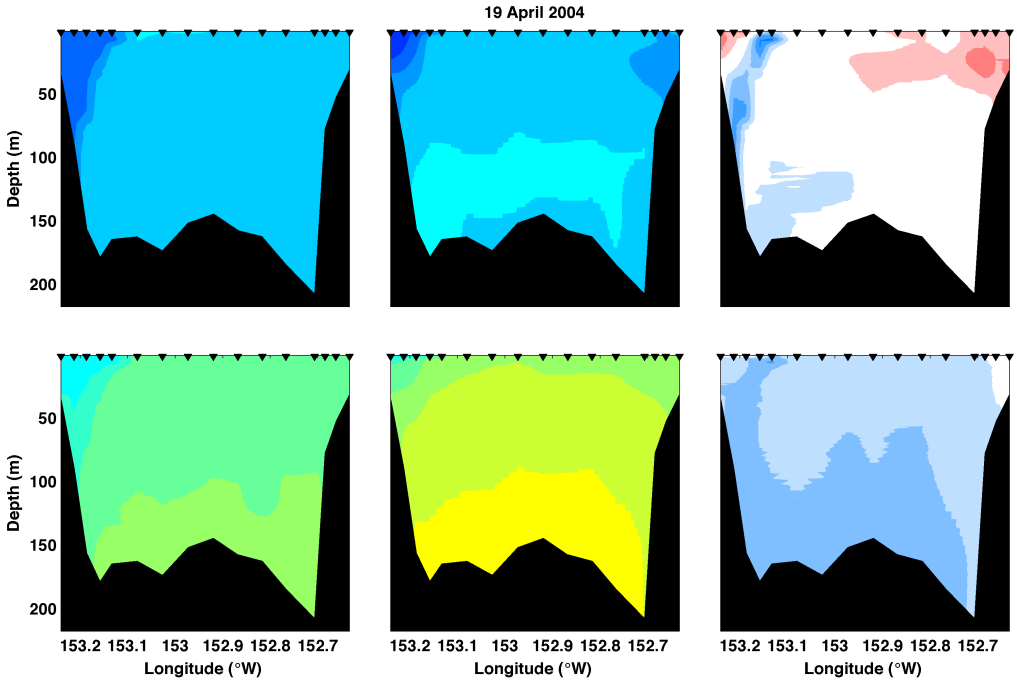

Figure A8.17: Transect 2.01 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

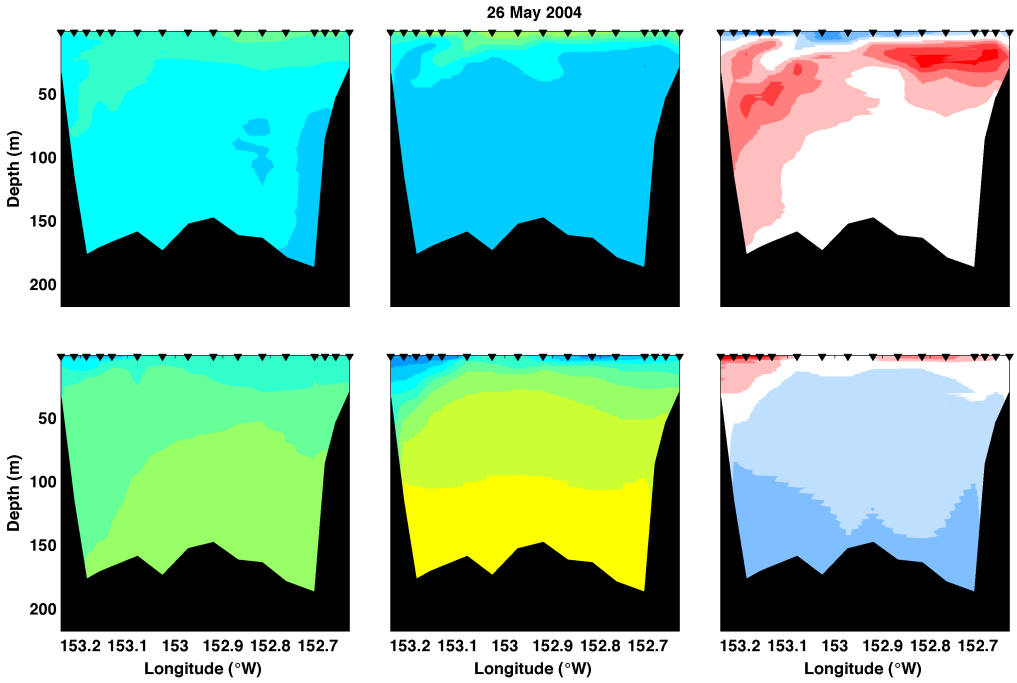

Figure A8.18: Transect 2.02 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

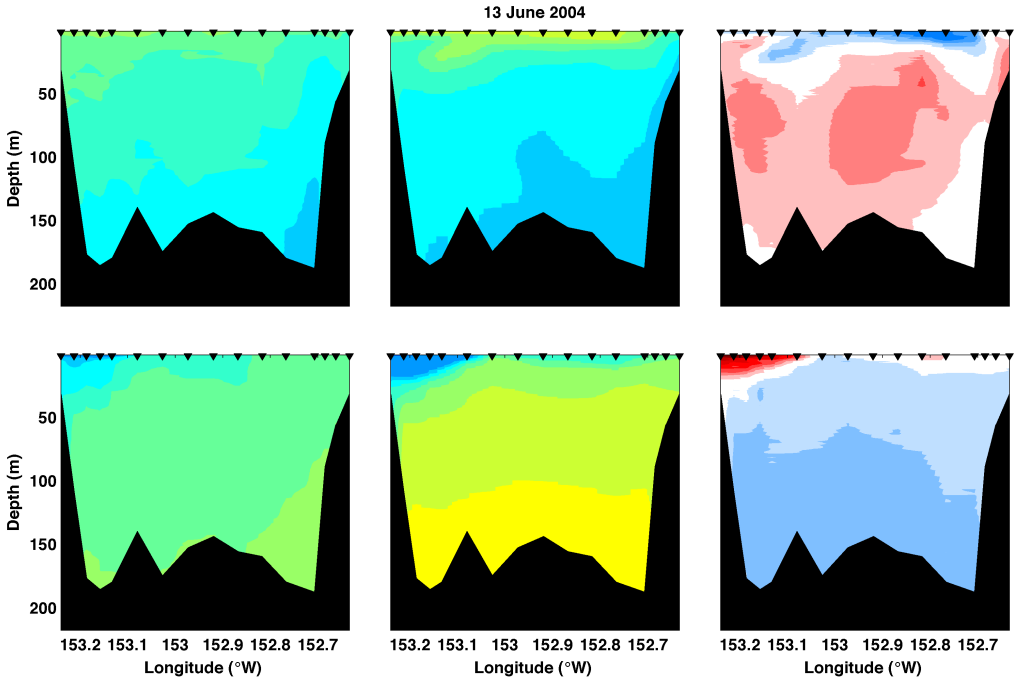

Figure A8.19: Transect 2.03 model-data comparison for temperature (top), salinity (bottom), with the

observations shown on the left, the model in the center and the difference (observations-model) on the right.

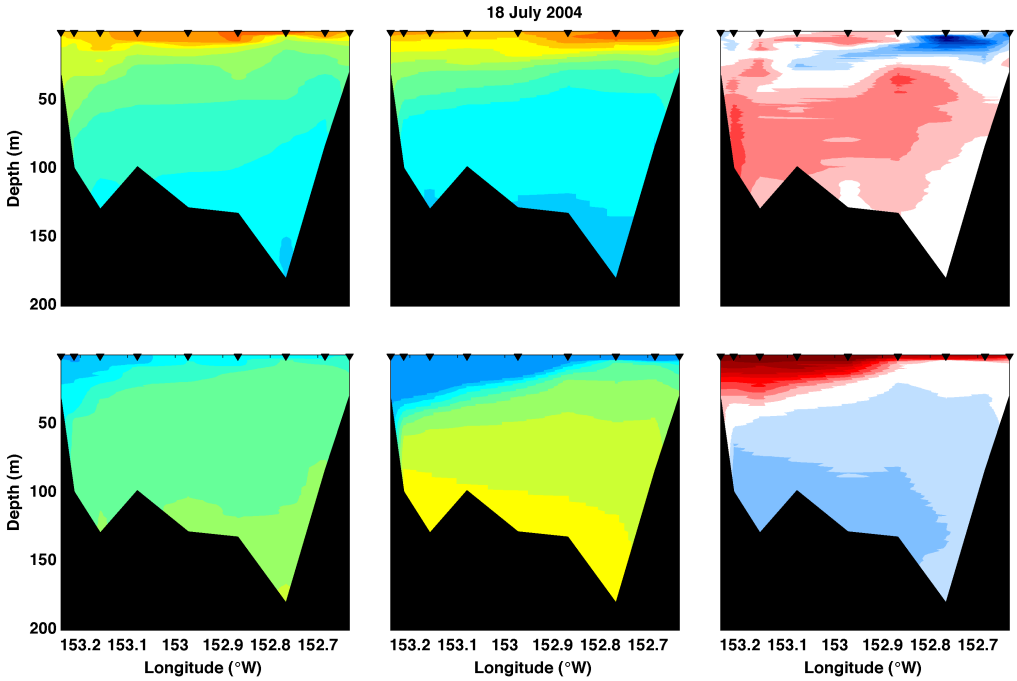

Figure A8.20: Transect 2.04 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

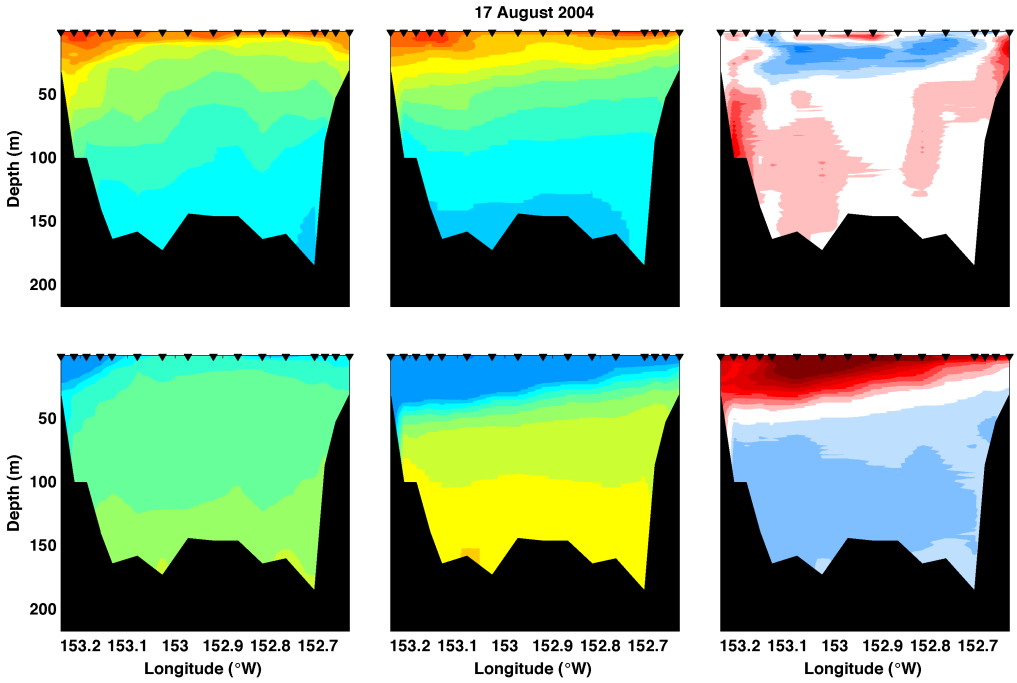

Figure A8.21: Transect 2.05 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

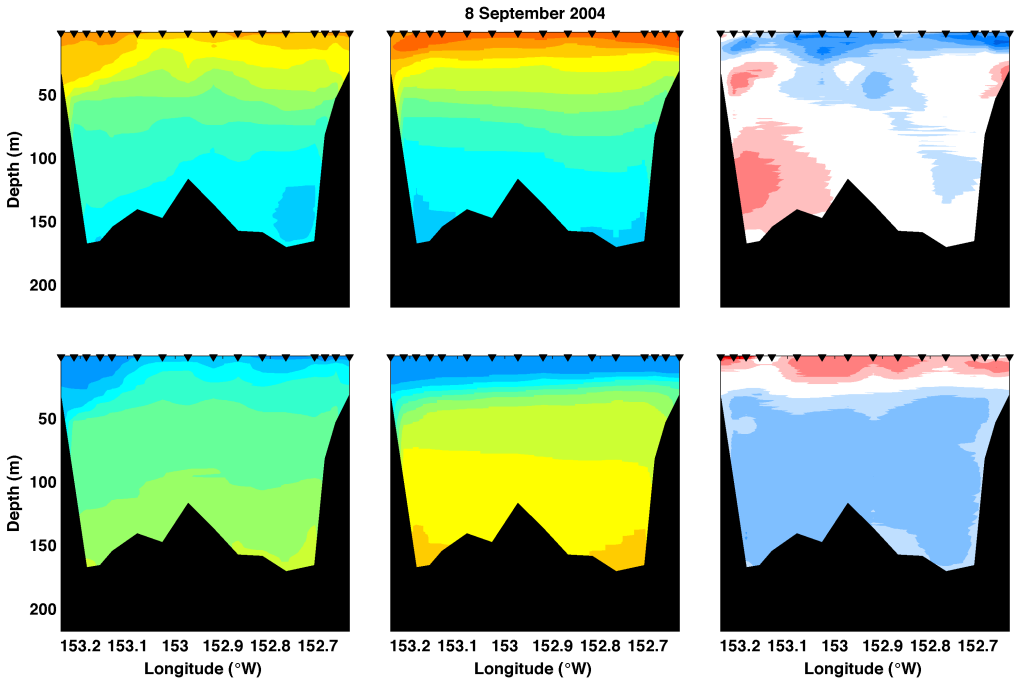

Figure A8.22: Transect 2.06 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

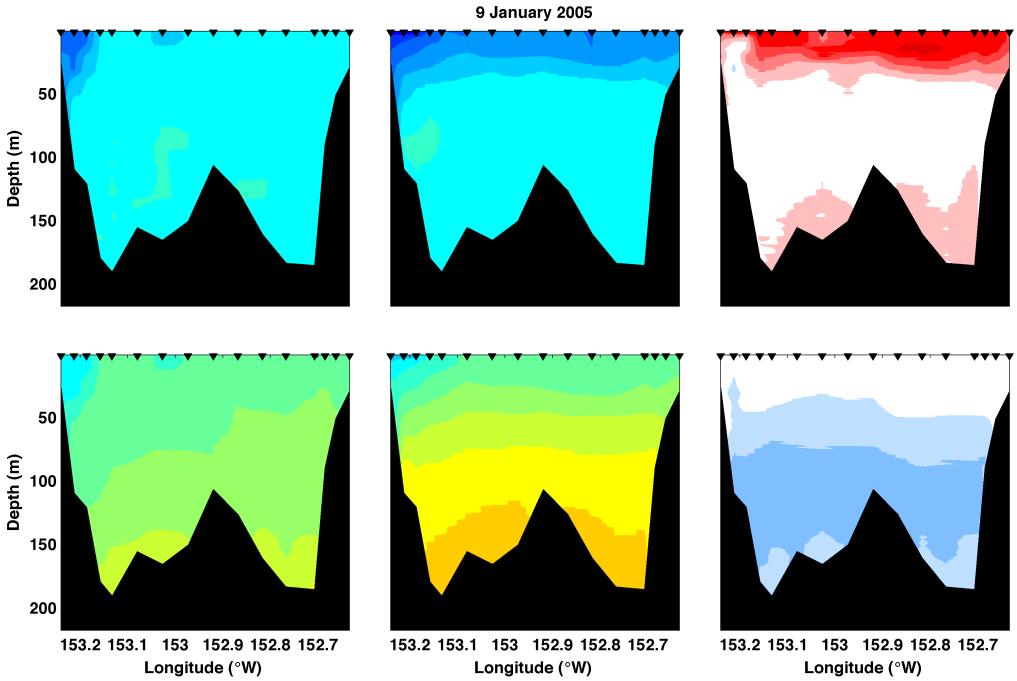

Figure A8.23: Transect 2.07 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

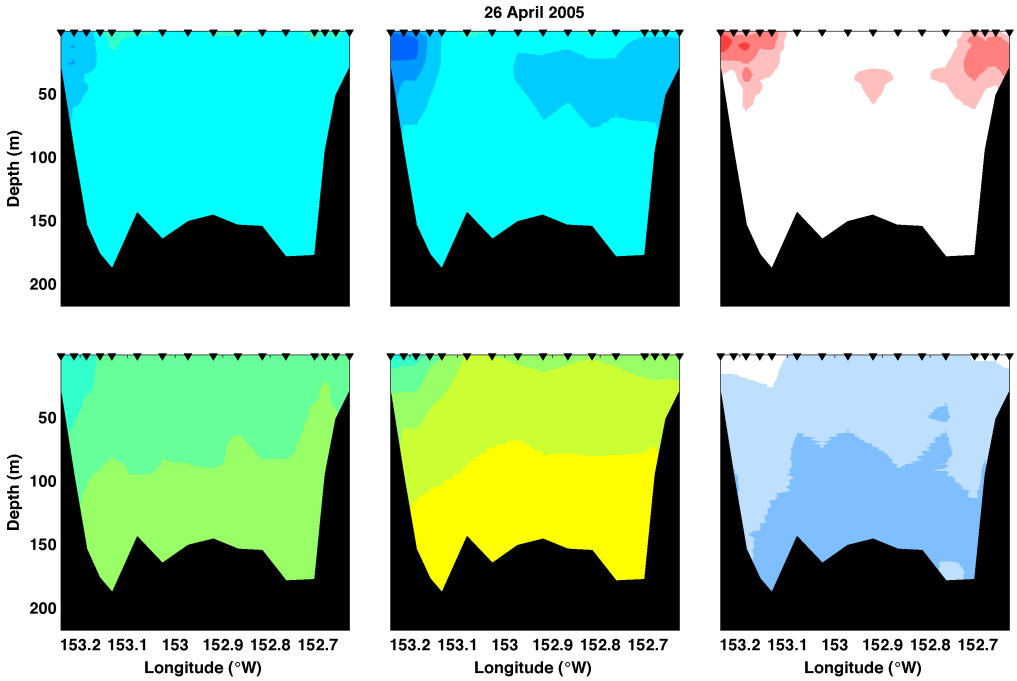

Figure A8.24: Transect 2.08 model-data comparison for temperature (top), salinity (bottom), with the

observations shown on the left, the model in the center and the difference (observations-model) on the right.

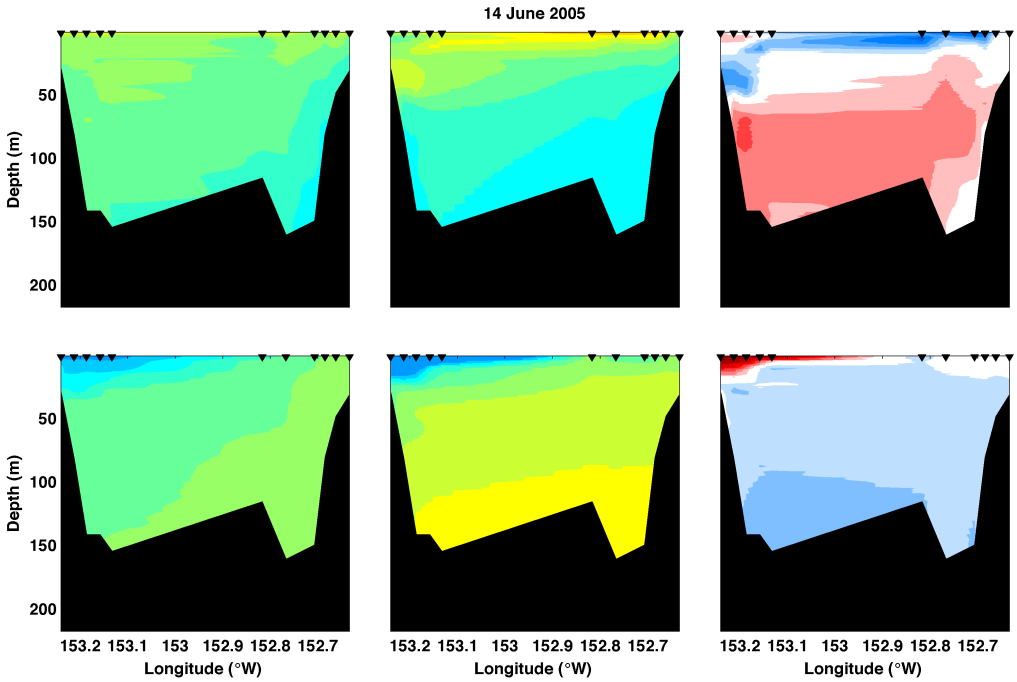

Figure A8.25: Transect 2.09 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

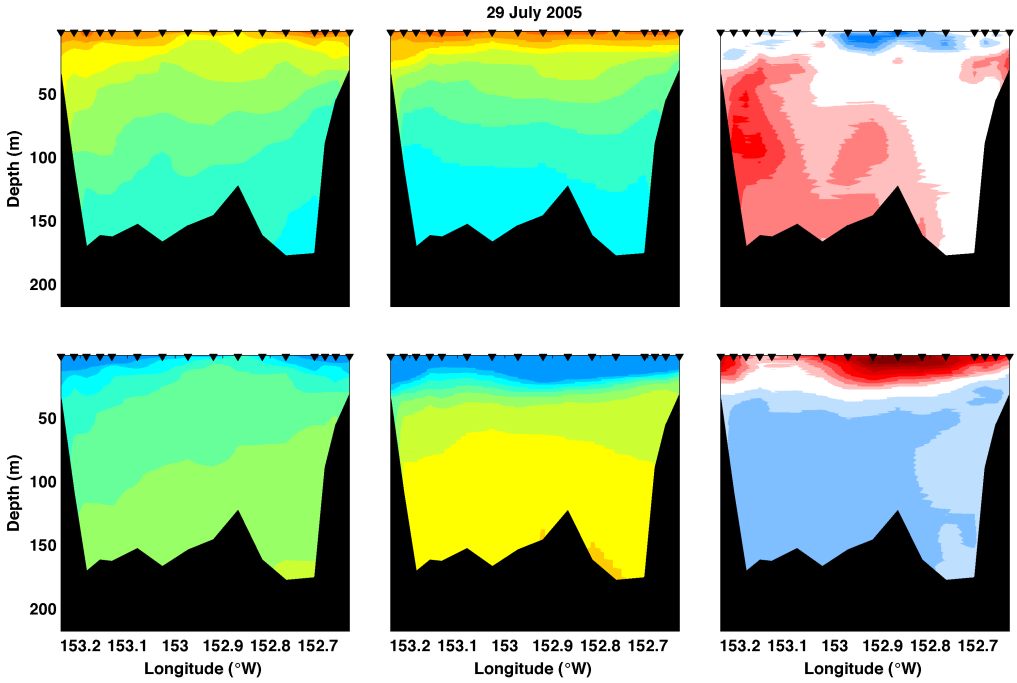

Figure A8.26: Transect 2.10 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

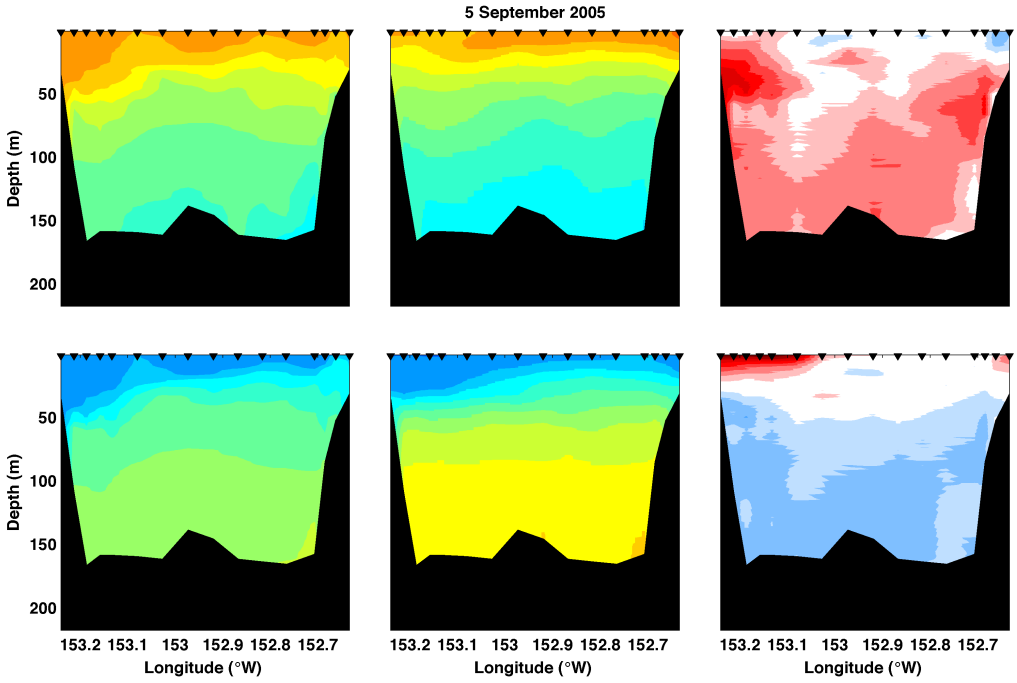

Figure A8.27: Transect 2.11 model-data comparison for temperature (top), salinity (bottom), with the

observations shown on the left, the model in the center and the difference (observations-model) on the right.

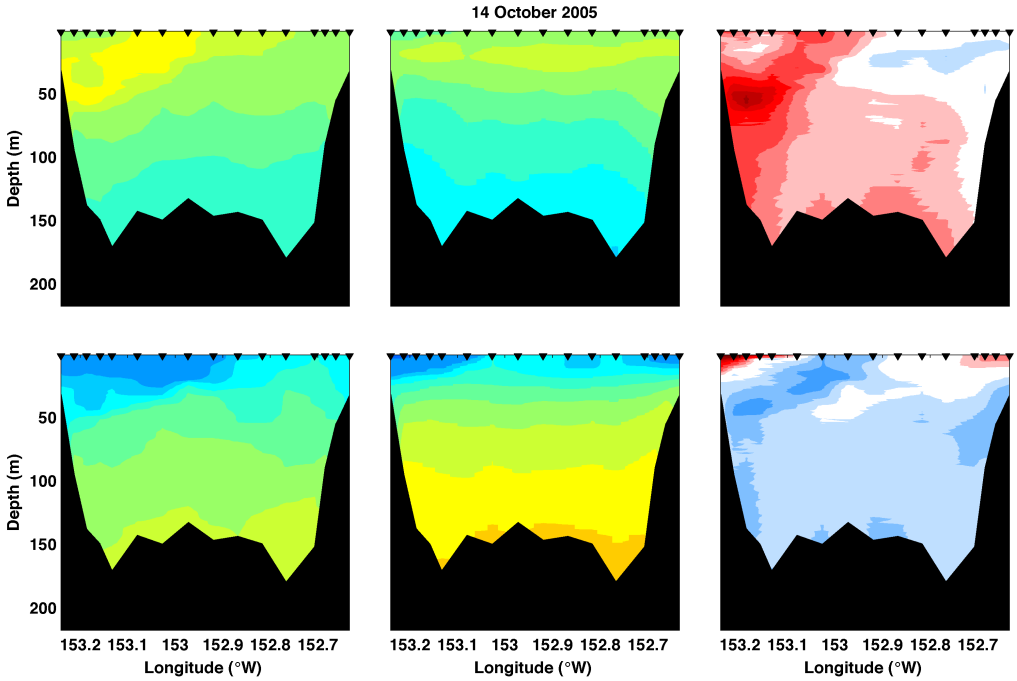

Figure A8.28: Transect 2.12 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

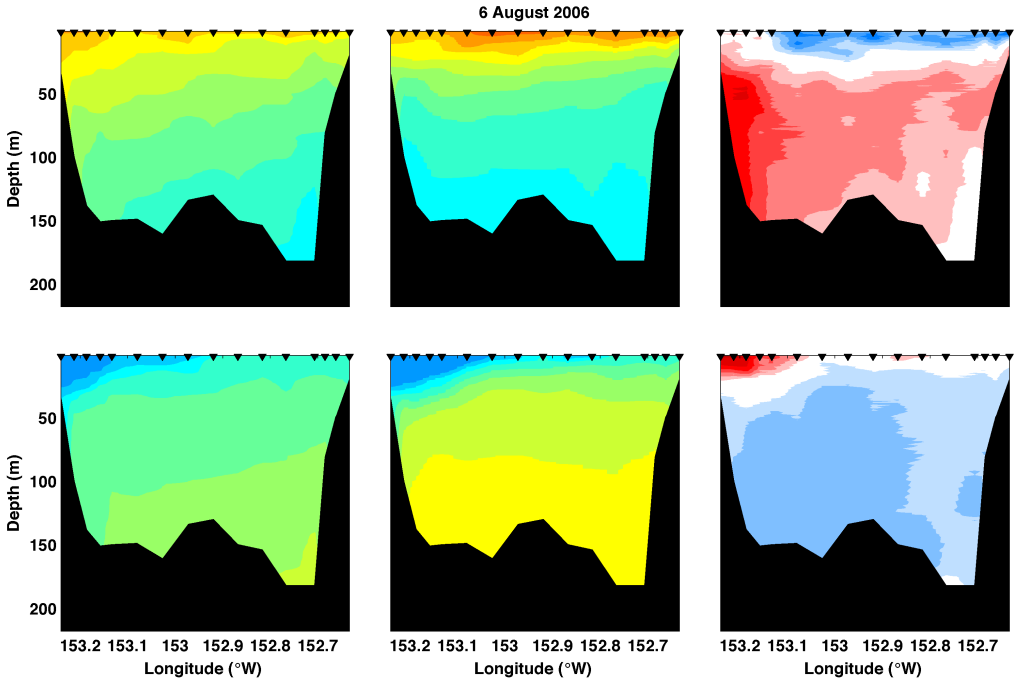

Figure A8.29: Transect 2.13 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

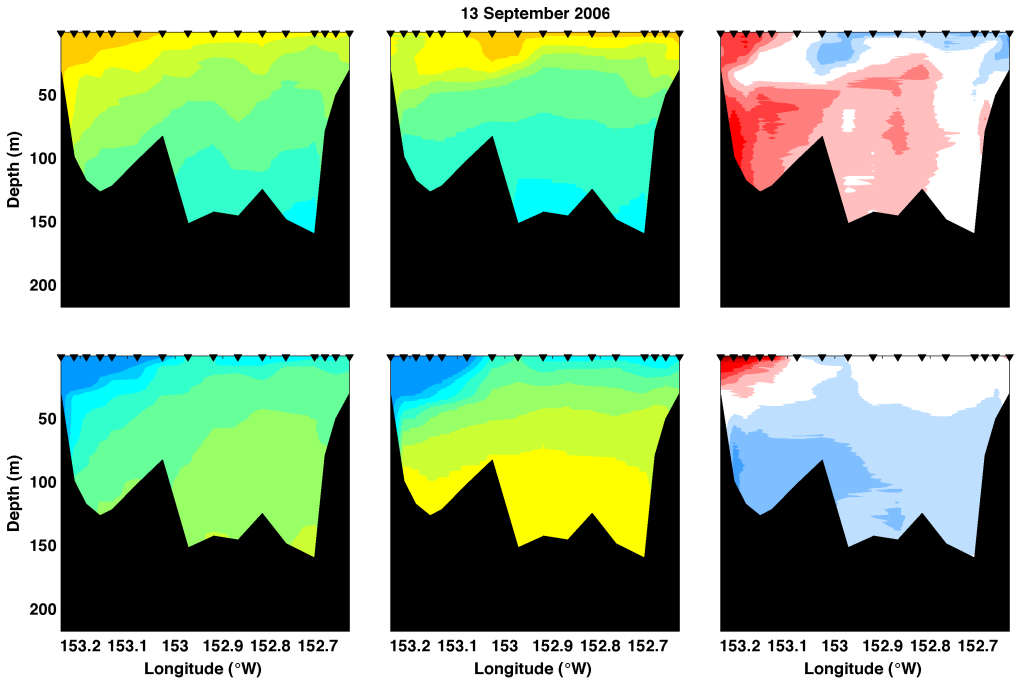

Figure A8.30: Transect 2.14 model-data comparison for temperature (top), salinity (bottom), with3 the observations shown on the left, the model in the center and the difference (observations-model) on the right.

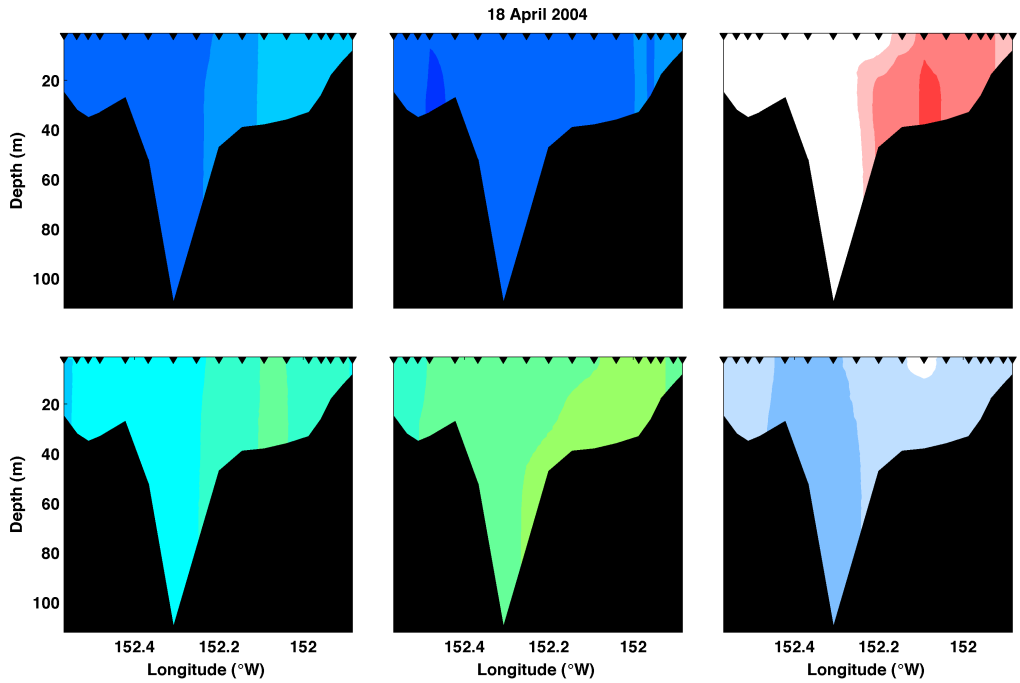

Figure A8.31: Transect 3.01 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

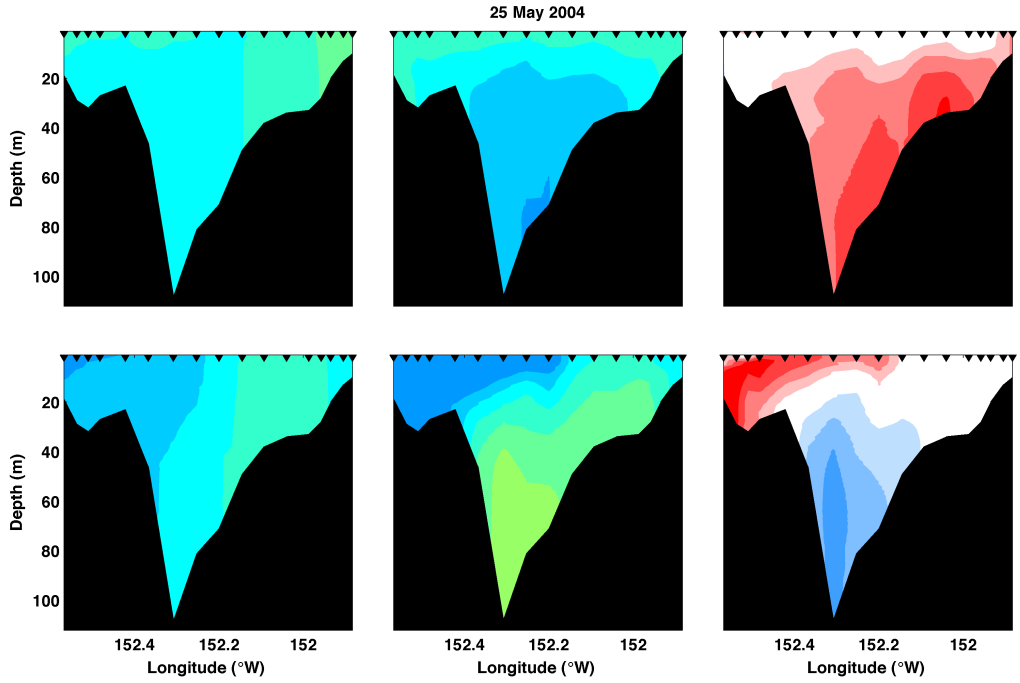

Figure A8.32: Transect 3.02 model-data comparison for temperature (top), salinity (bottom), with the

observations shown on the left, the model in the center and the difference (observations-model) on the right.

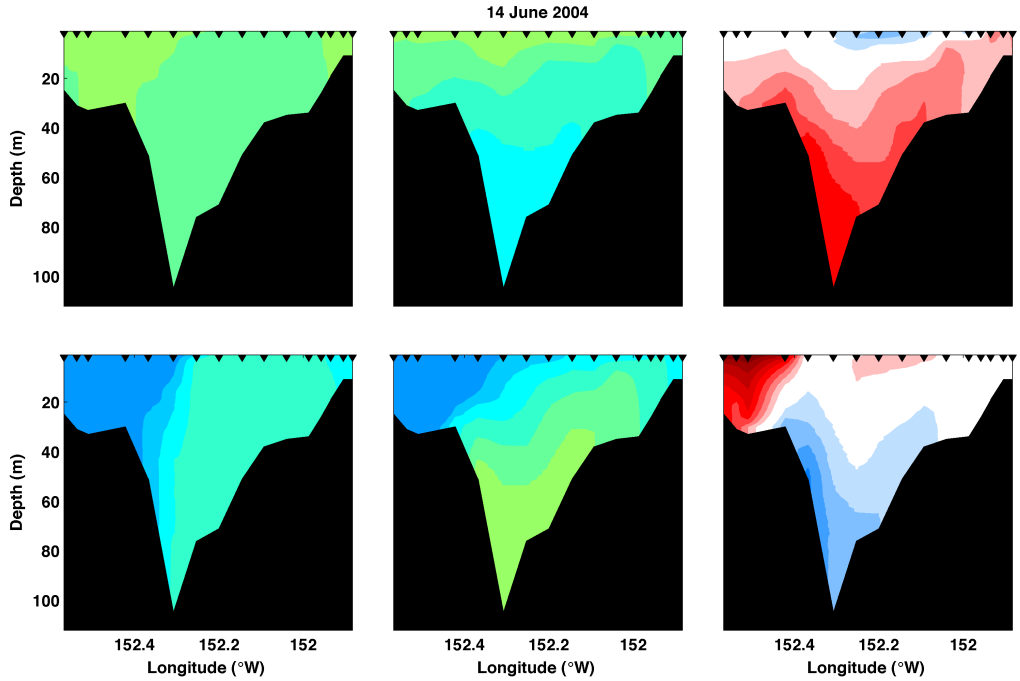

Figure A8.33: Transect 3.03 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

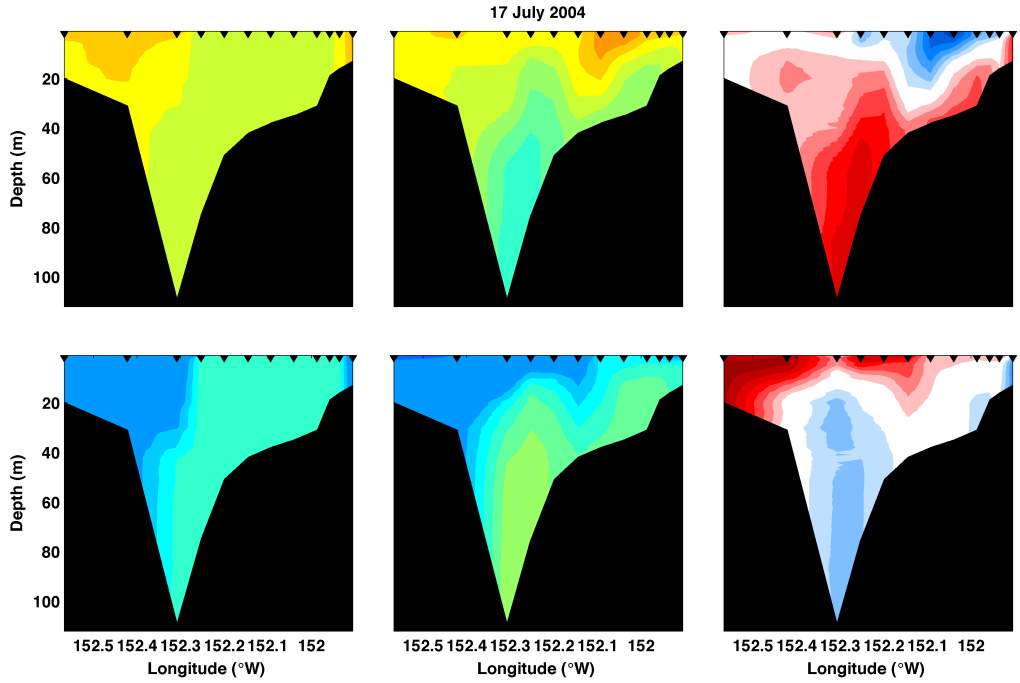

Figure A8.34: Transect 3.04 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

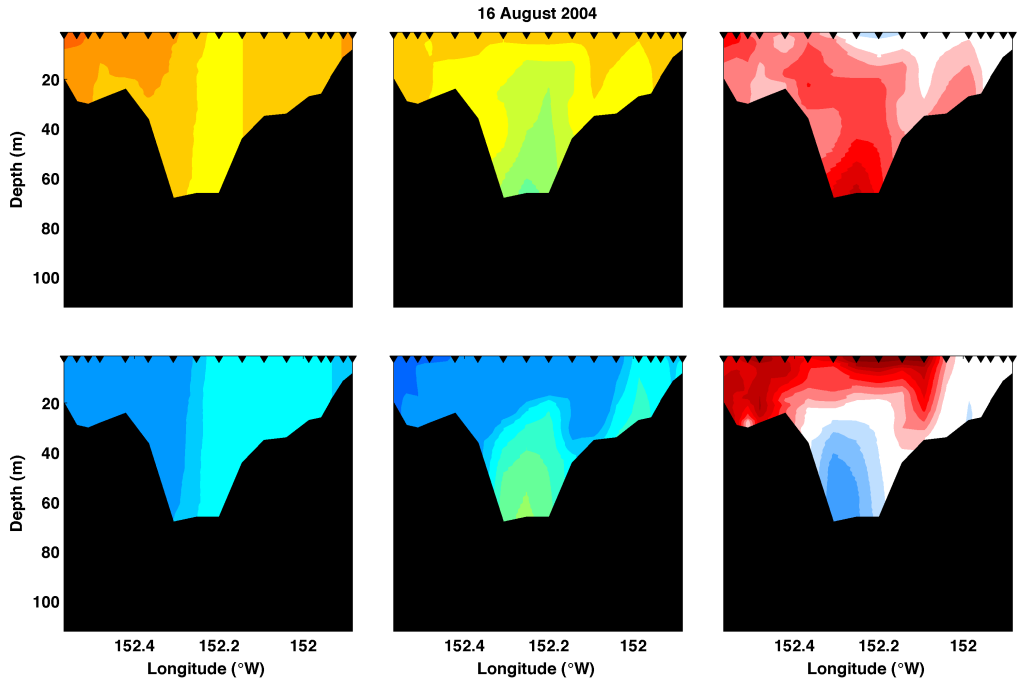

Figure A8.35: Transect 3.05 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

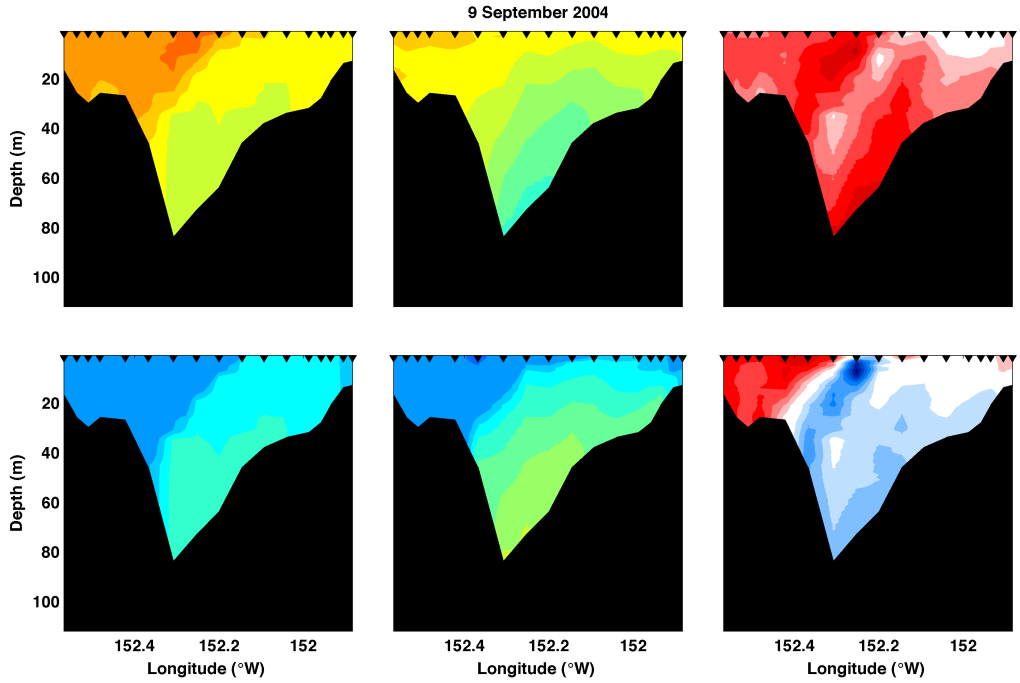

Figure A8.36: Transect 3.06 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

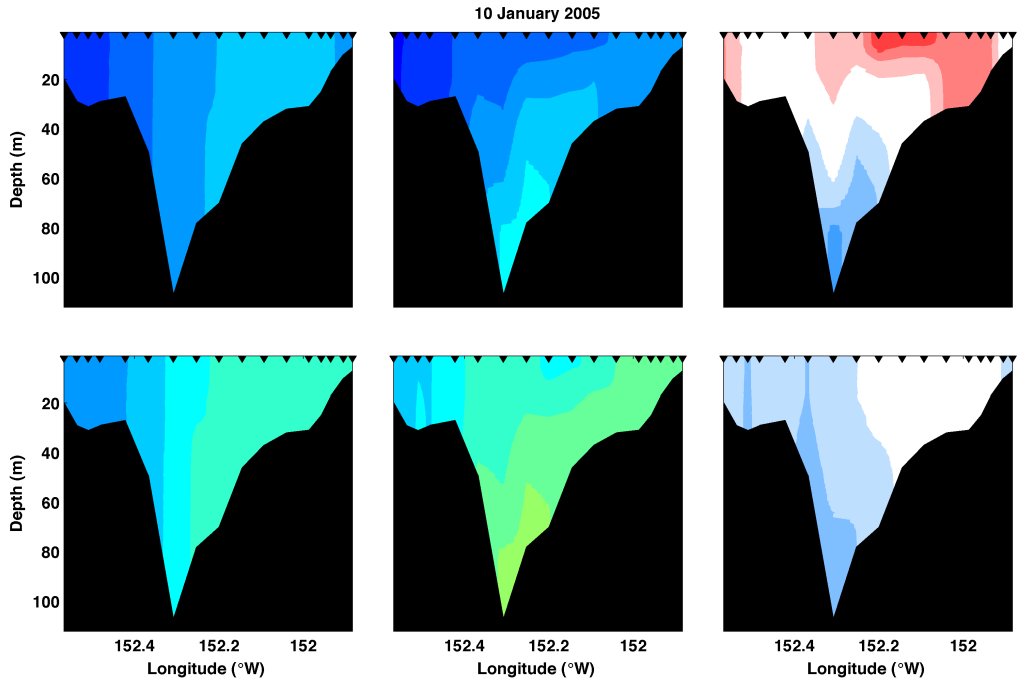

Figure A8.37: Transect 3.07 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

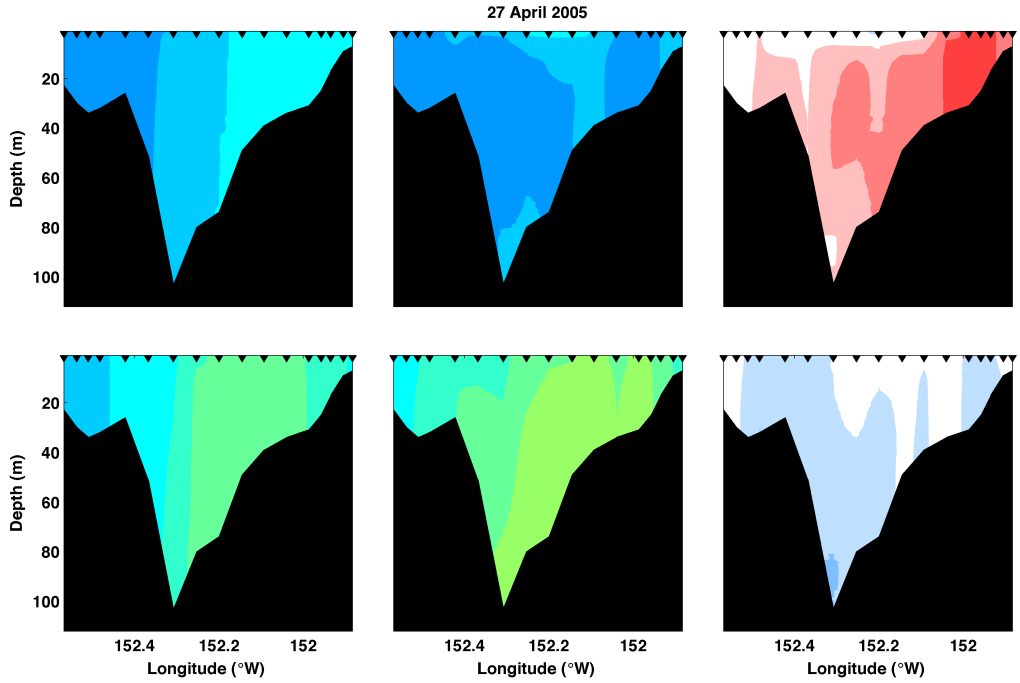

Figure A8.38: Transect 3.08 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

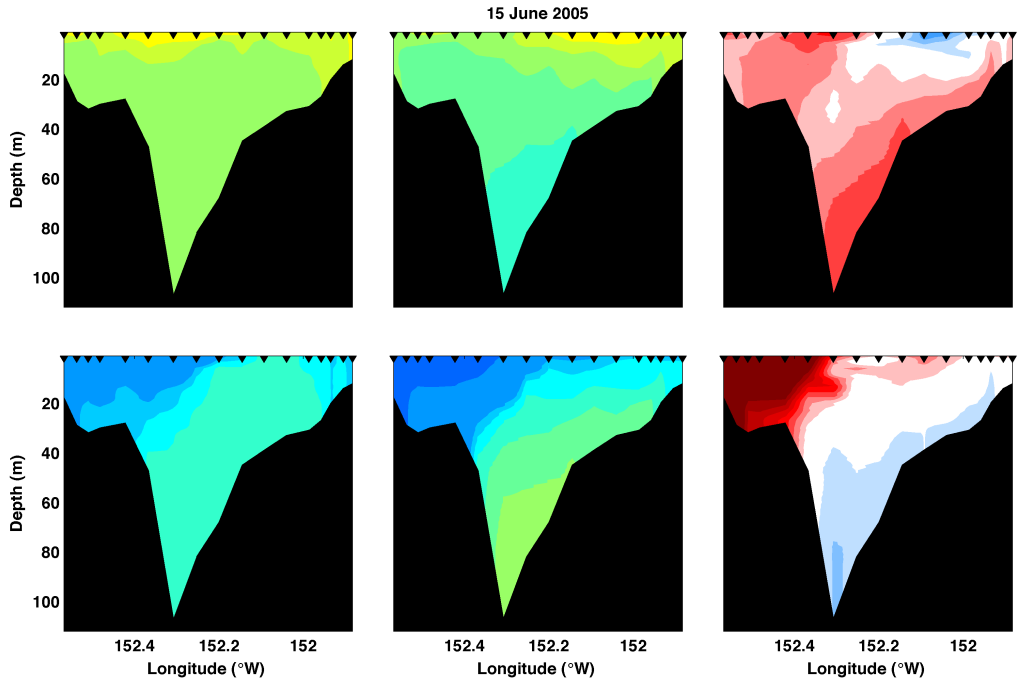

Figure A8.39: Transect 3.09 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

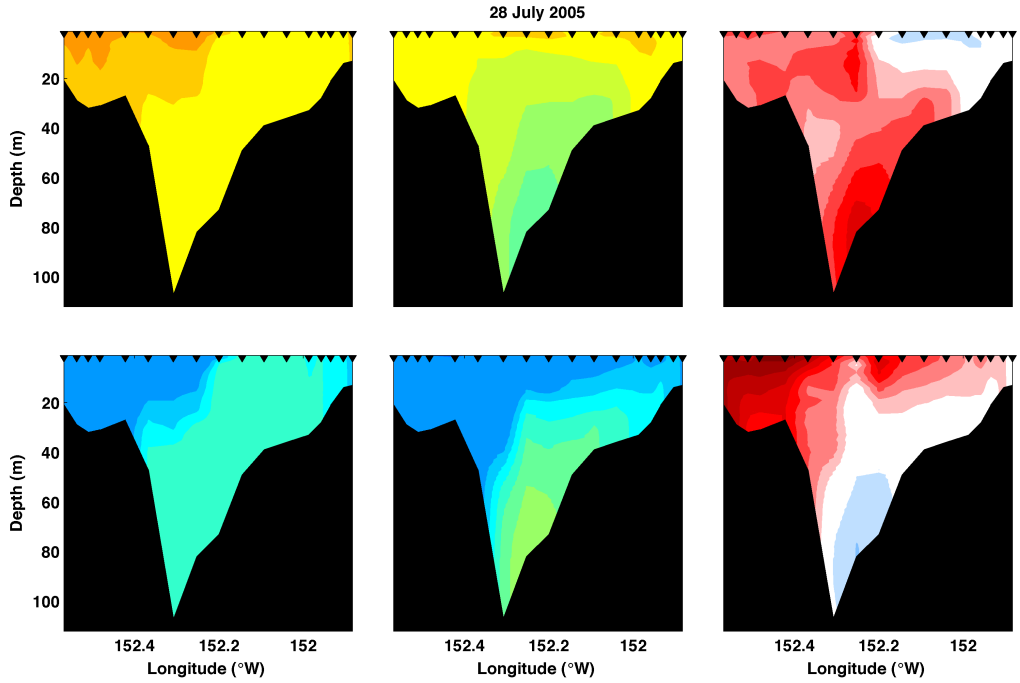

Figure A8.40: Transect 3.10 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

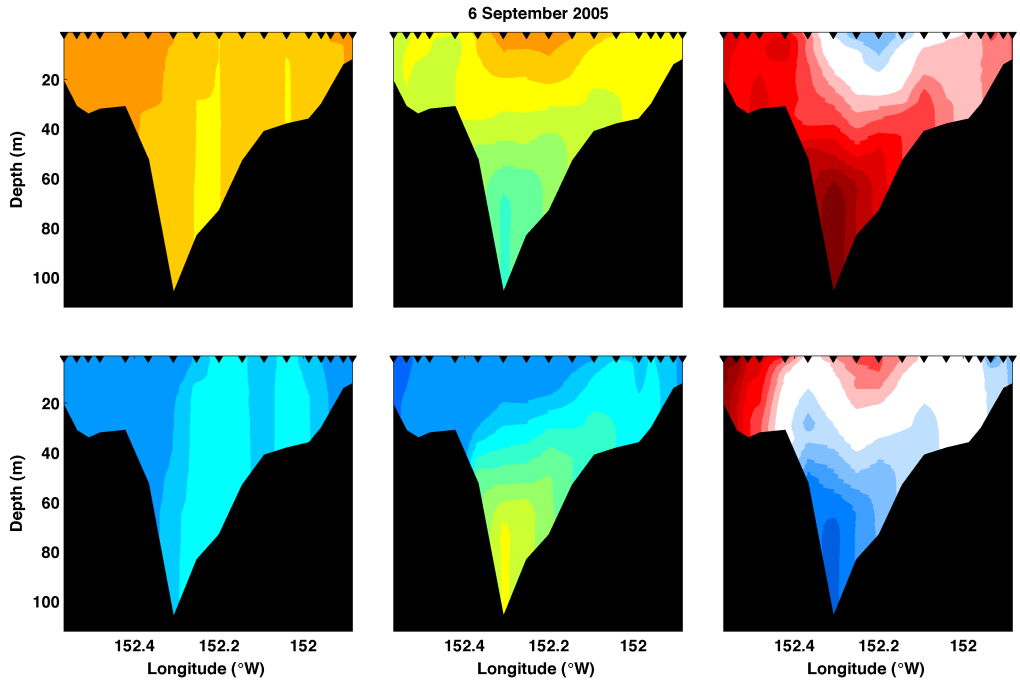

Figure A8.41: Transect 3.11 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

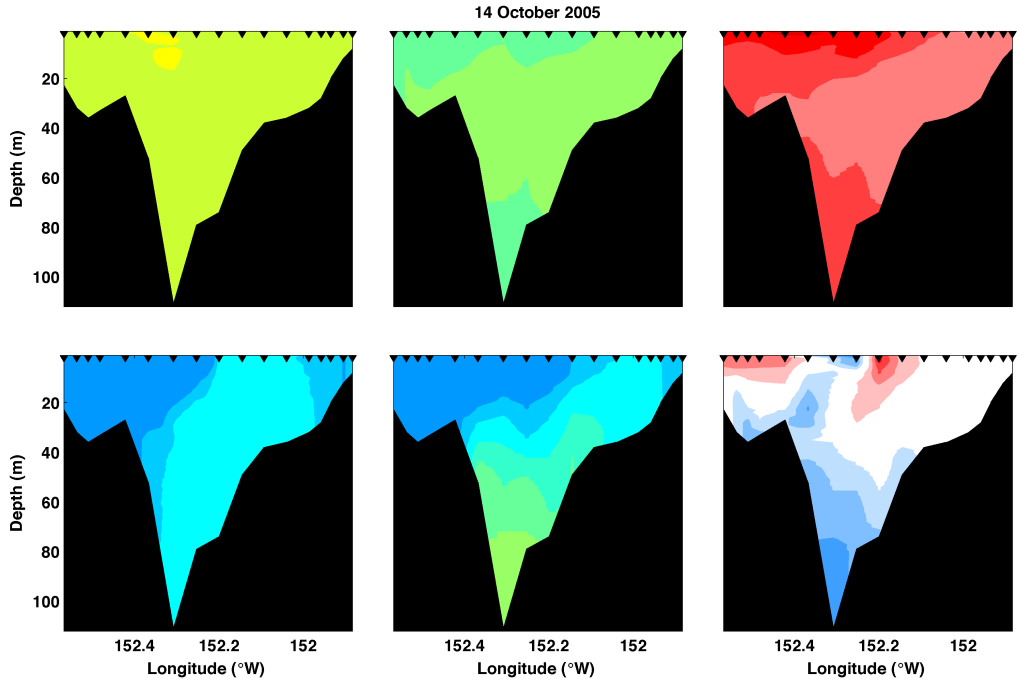

Figure A8.42: Transect 3.12 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

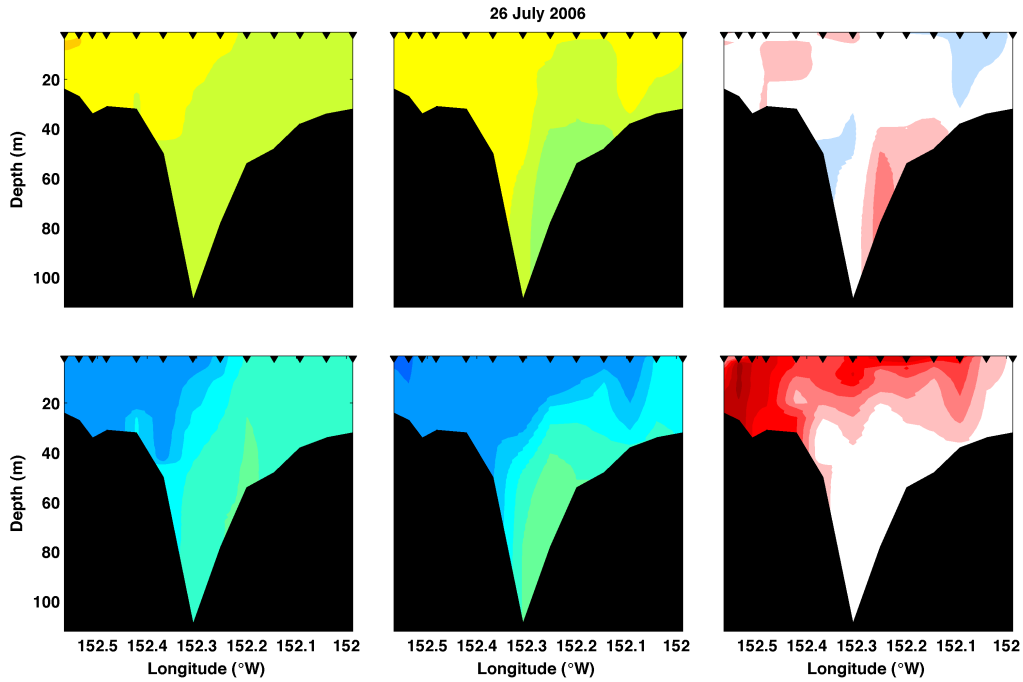

Figure A8:43 Transect 3.13 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

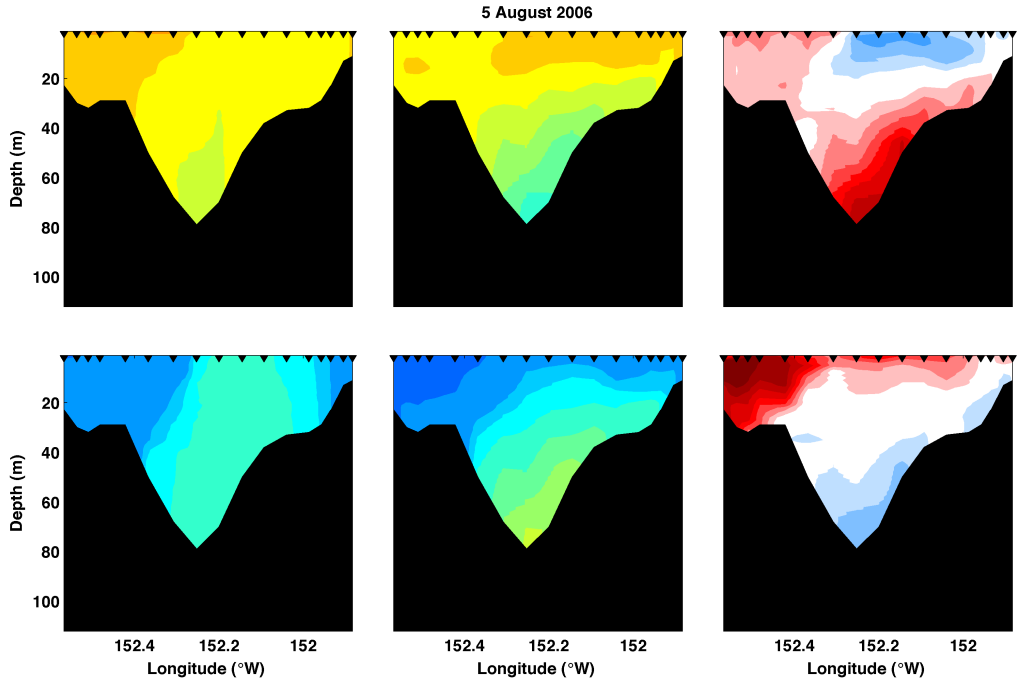

Figure A8.44: Transect 3.14 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

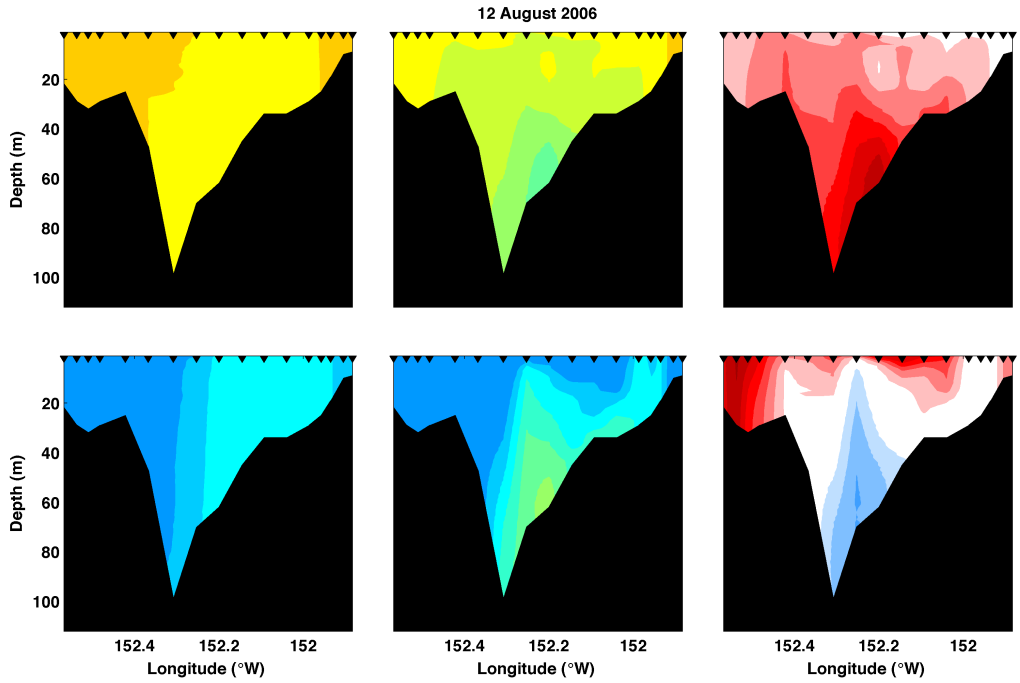

Figure A8.45: Transect 3.15 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

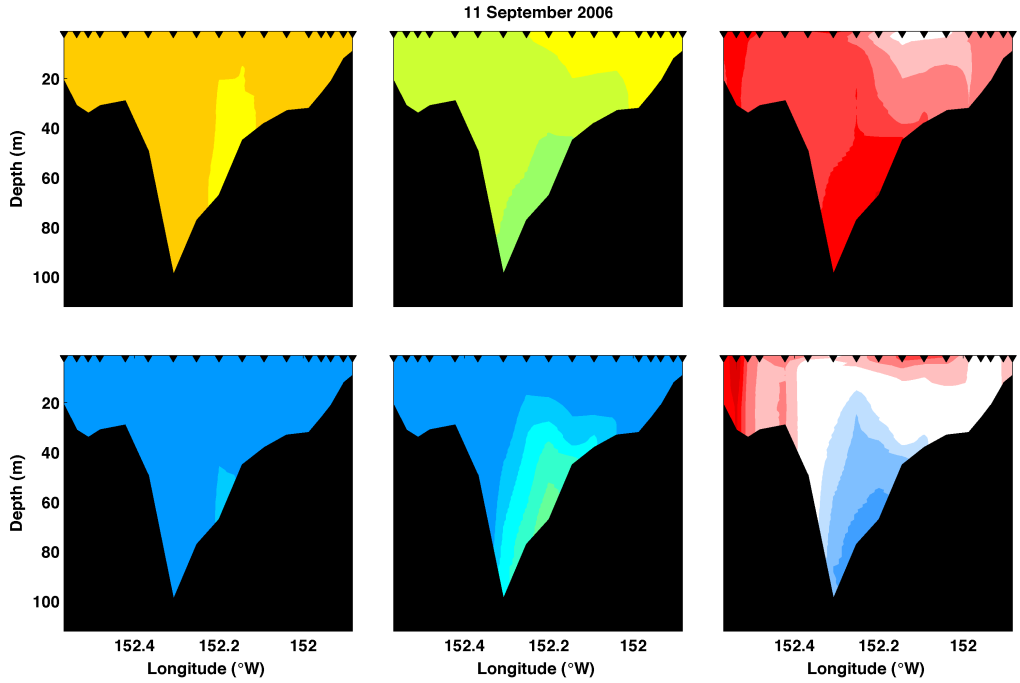

Figure A8.46: Transect 3.16 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

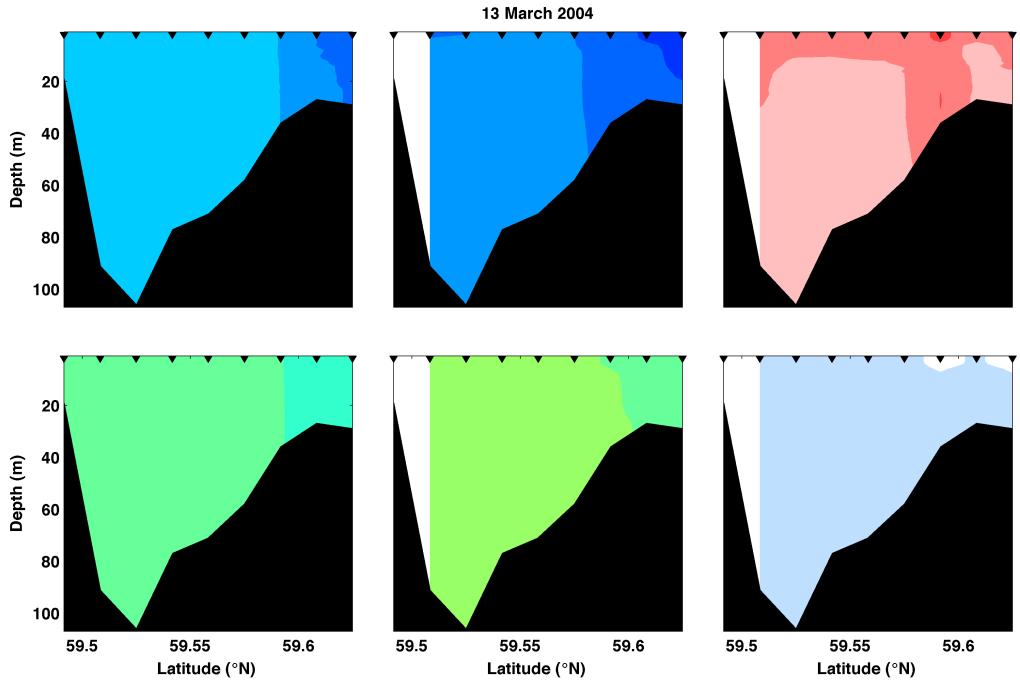

Figure A8.47: Transect 4.01 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

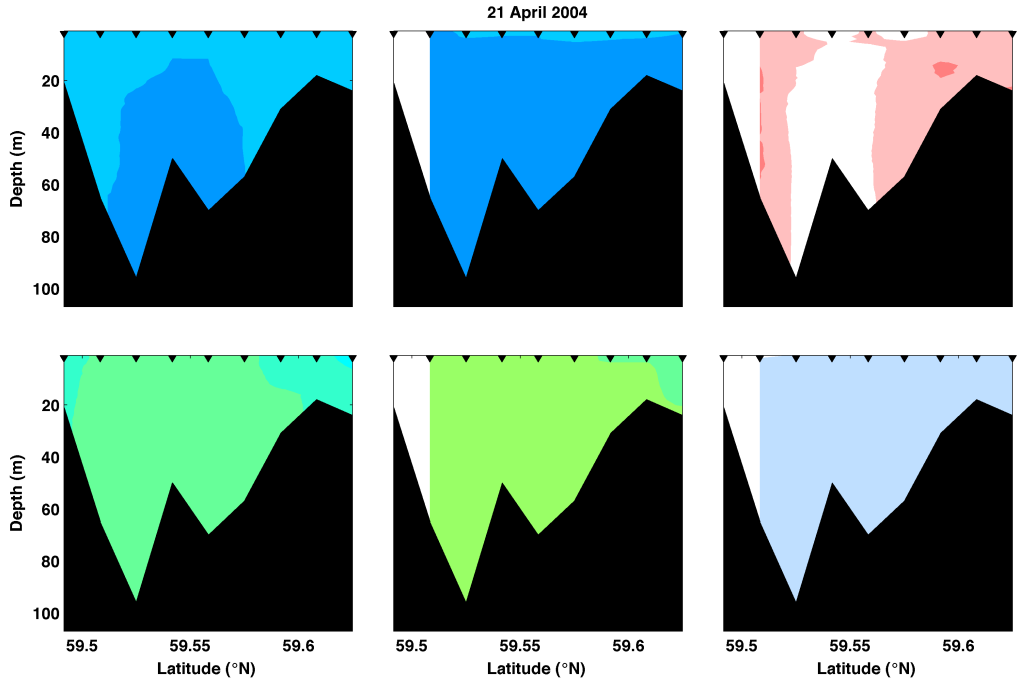

Figure A8.48: Transect 4.02 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

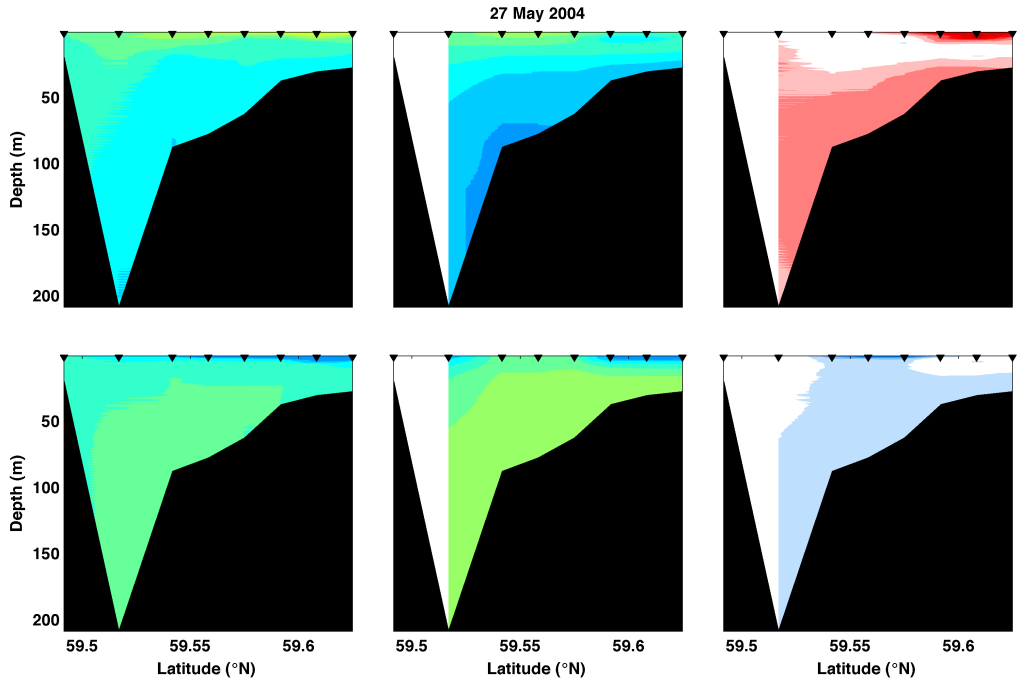

Figure A8.49: Transect 4.03 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

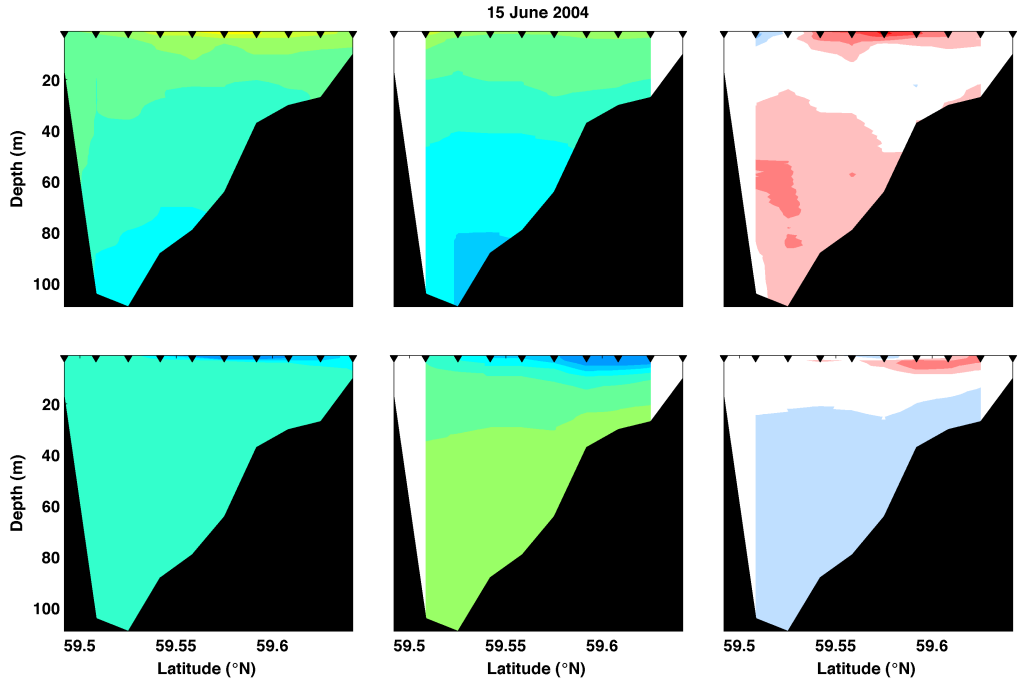

Figure A8.50: Transect 4.04 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

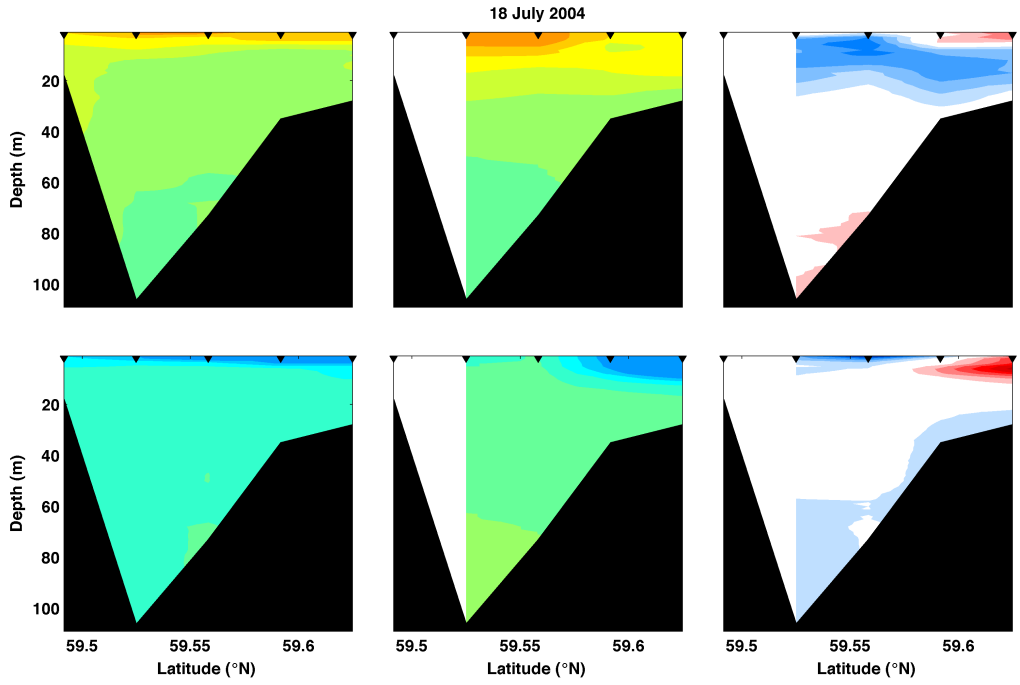

Figure A8.51: Transect 4.05 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

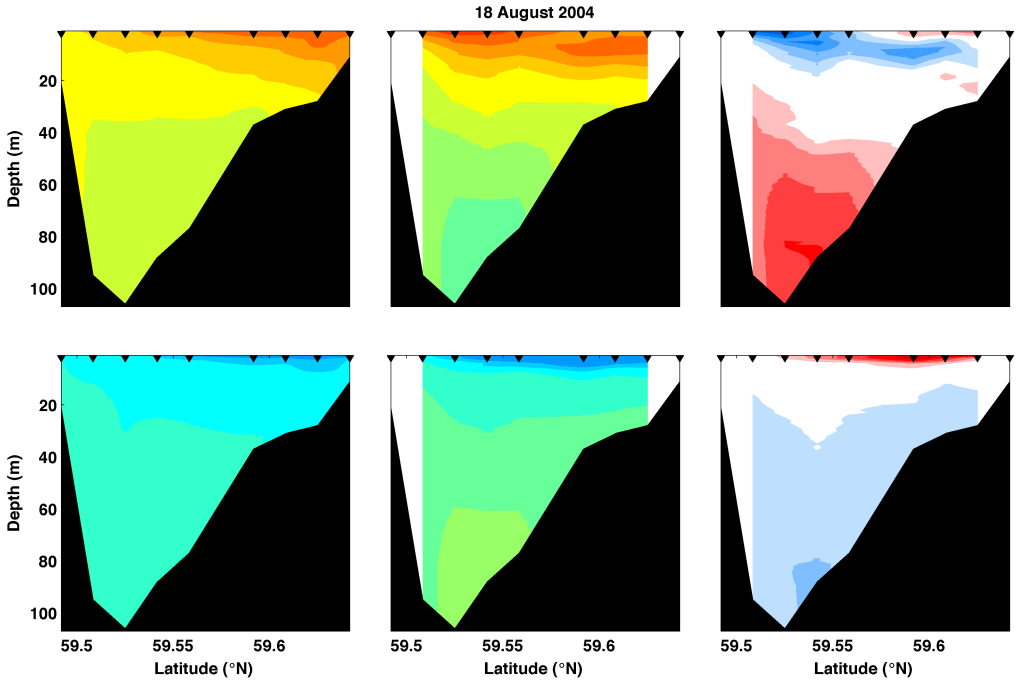

Figure A8.52: Transect 4.06 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

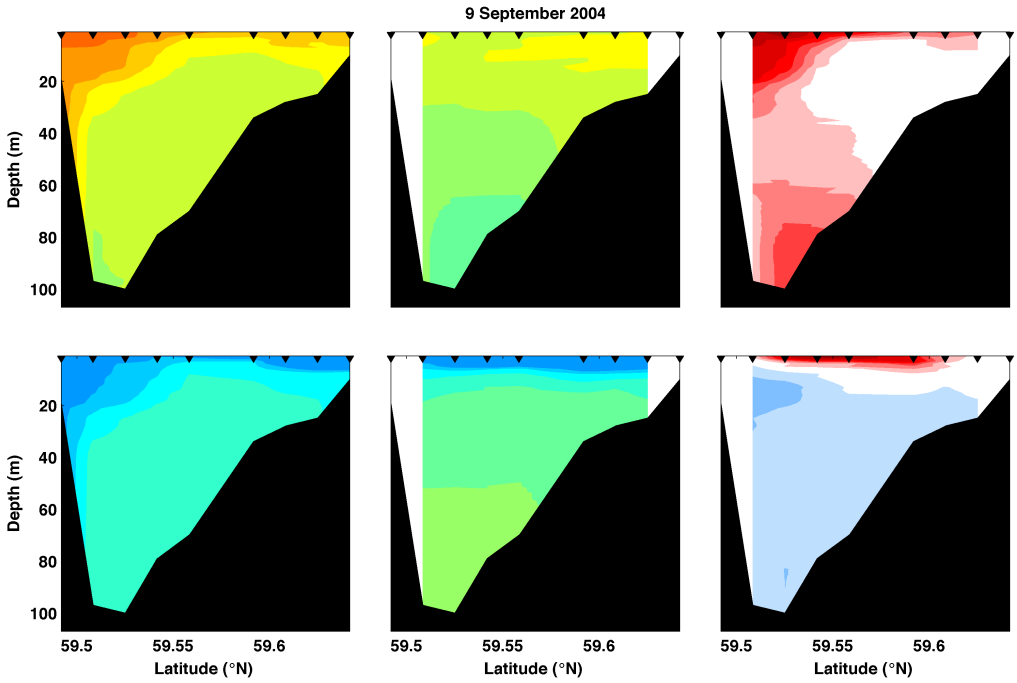

Figure A8.53: Transect 4.07 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

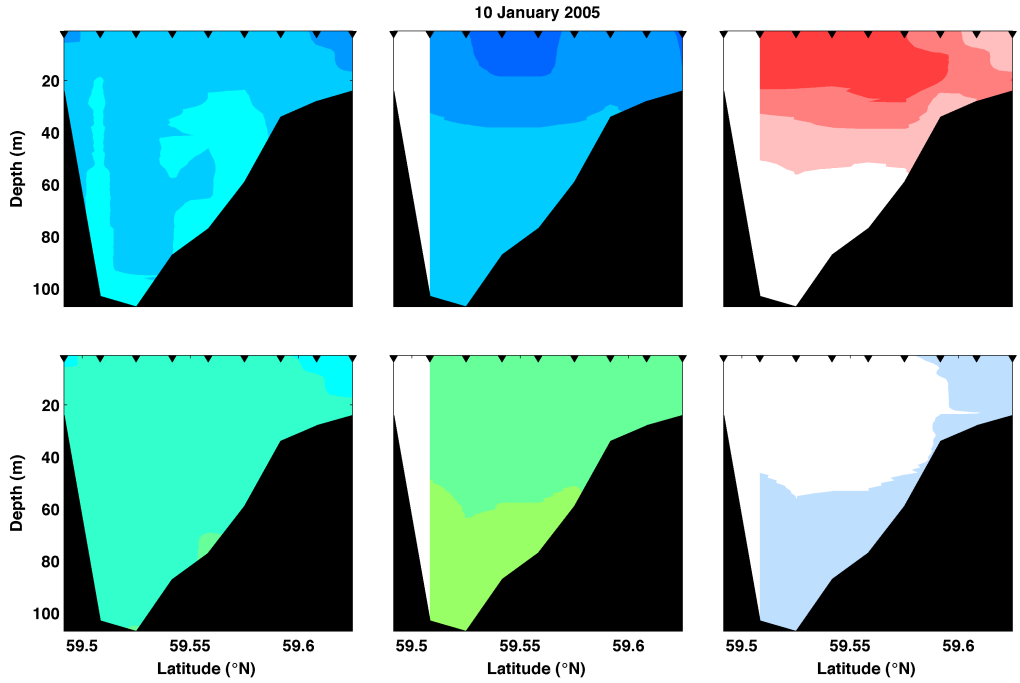

Figure A8.54: Transect 4.08 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

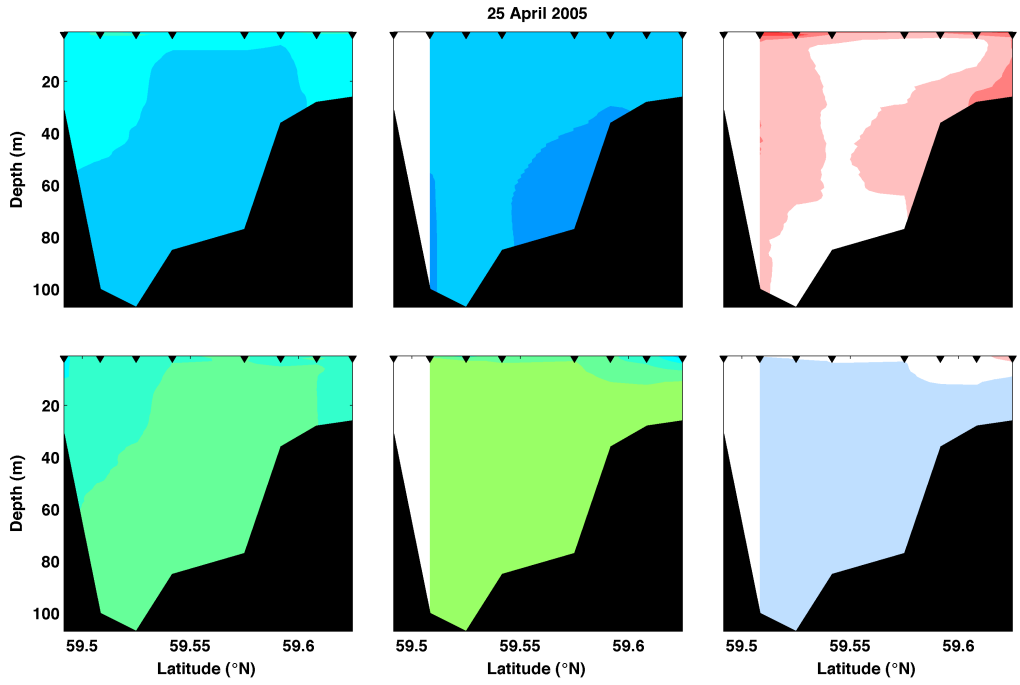

Figure A8.55: Transect 4.09 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

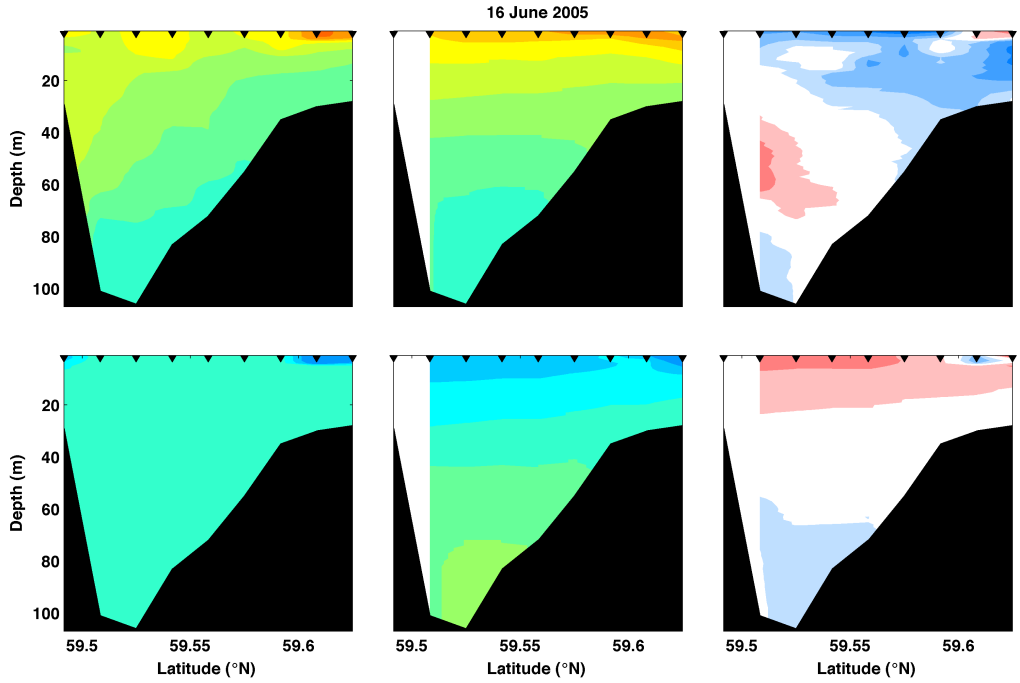

Figure A8.56: Transect 4.10 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

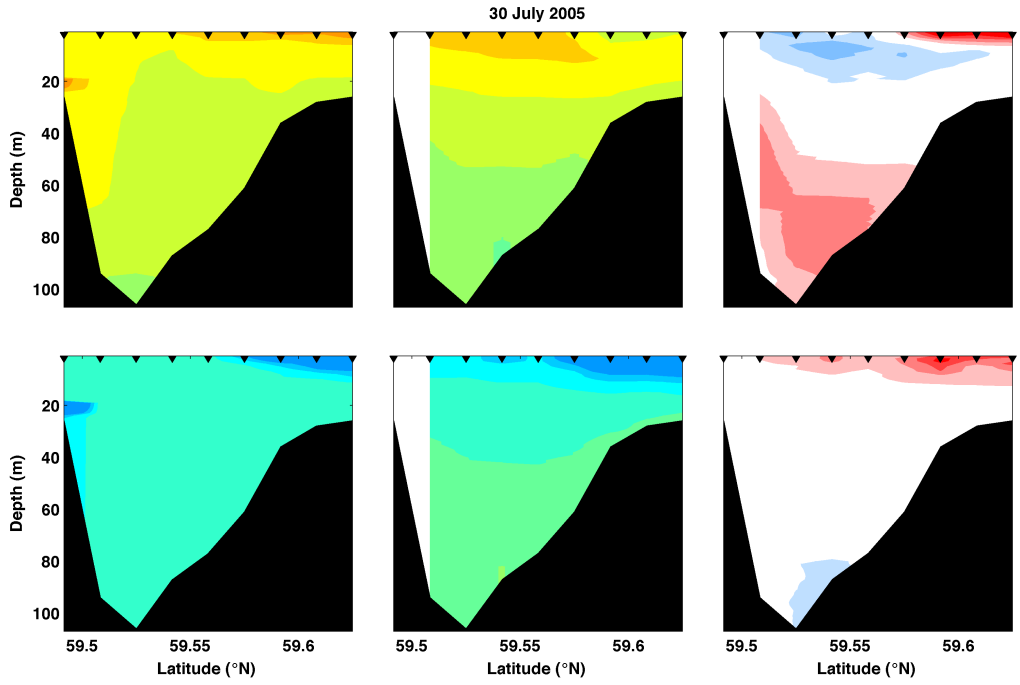

Figure A8.57: Transect 4.11 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

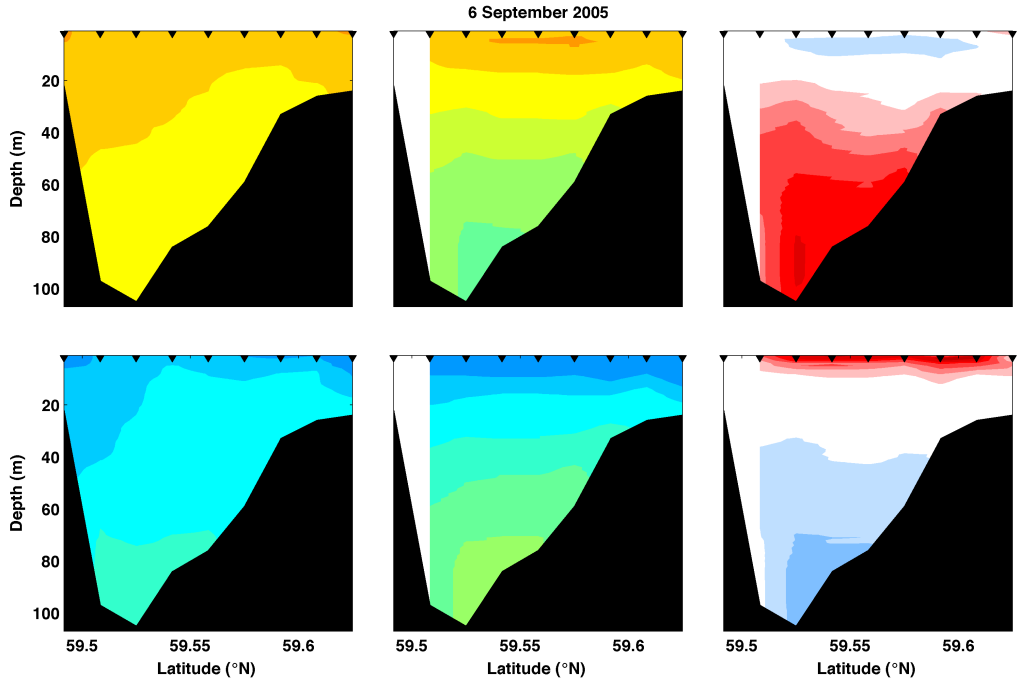

Figure A8.58: Transect 4.12 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

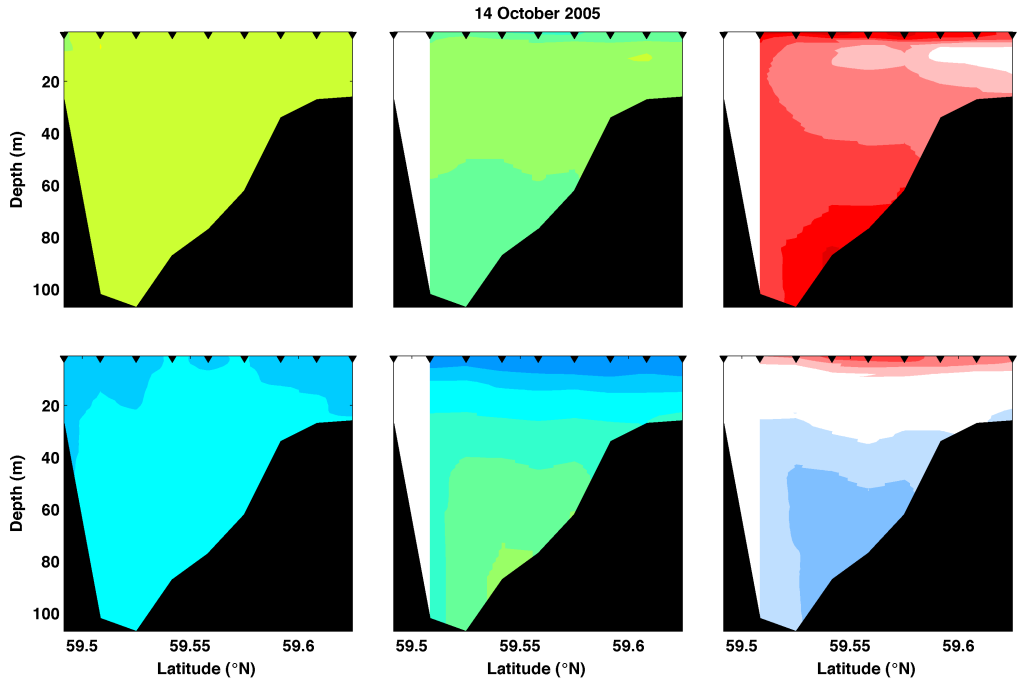

Figure A8.59: Transect 4.13 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

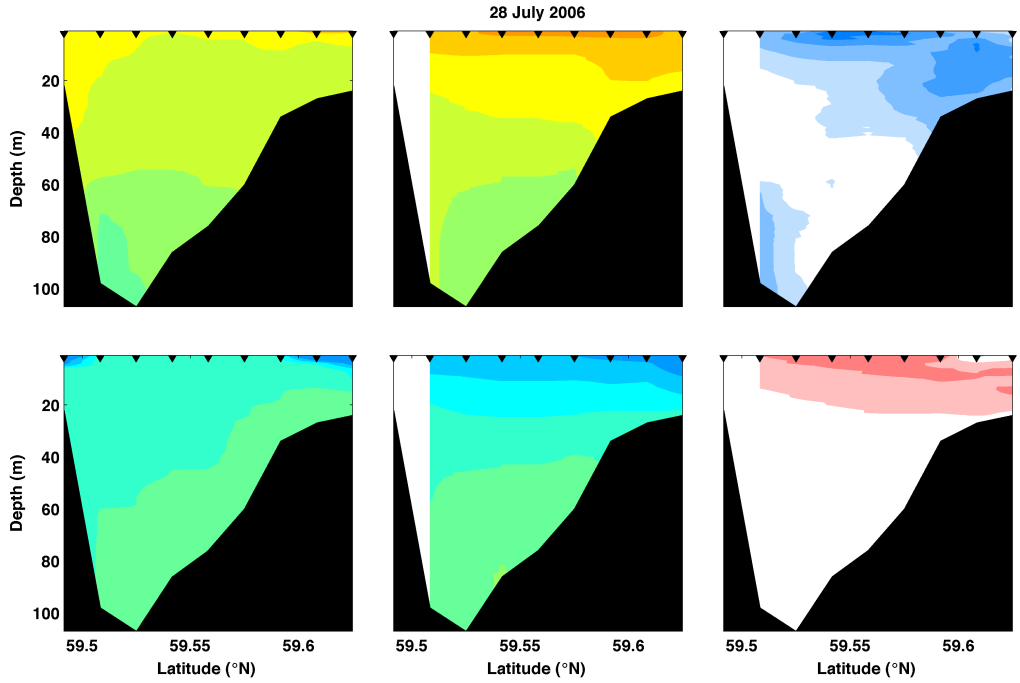

Figure A8.60: Transect 4.14 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

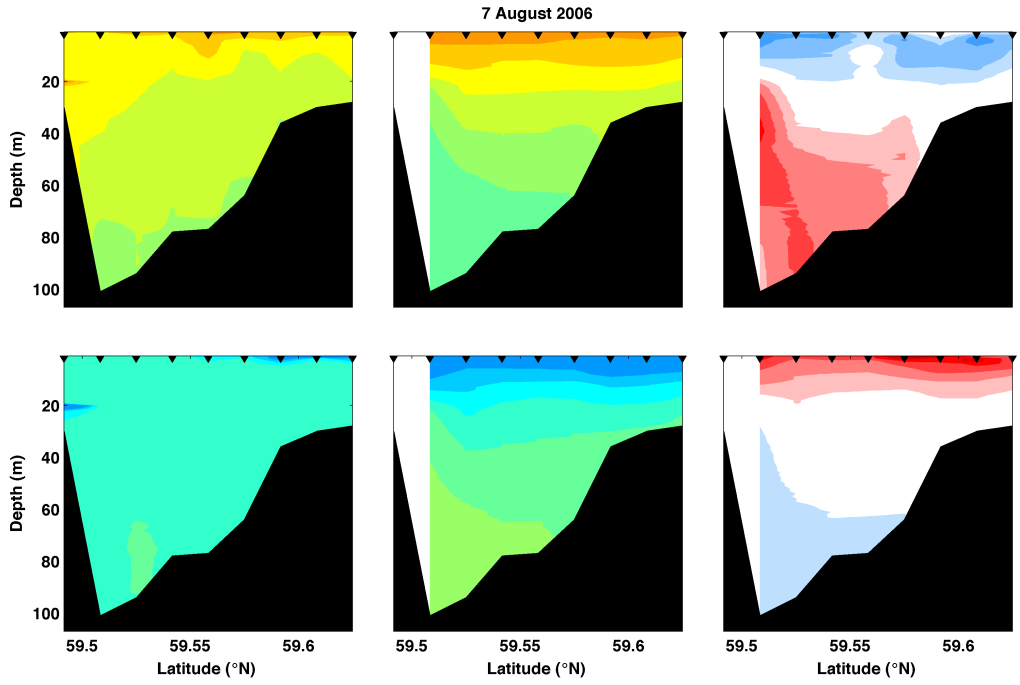

Figure A8.61: Transect 4.15 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

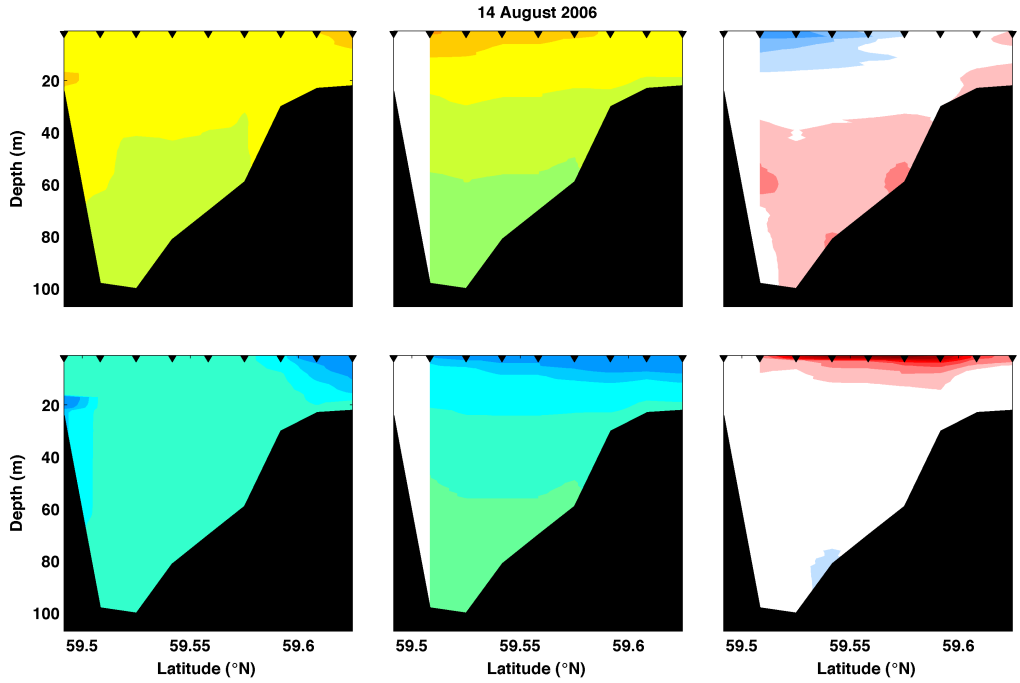

Figure A8.62: Transect 4.16 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

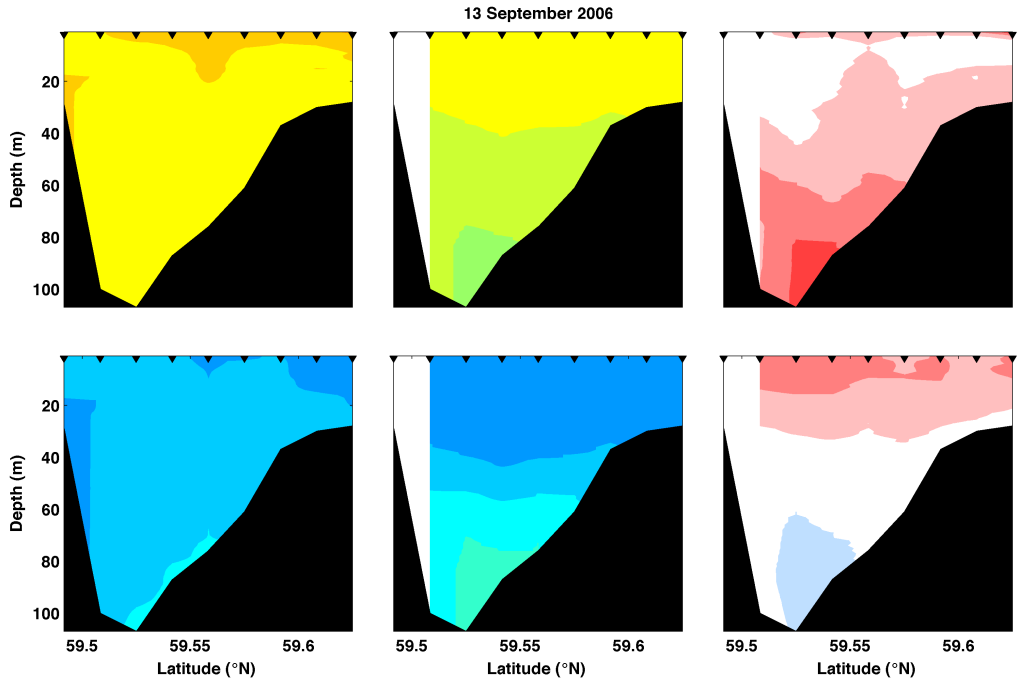

Figure A8.63: Transect 4.17 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

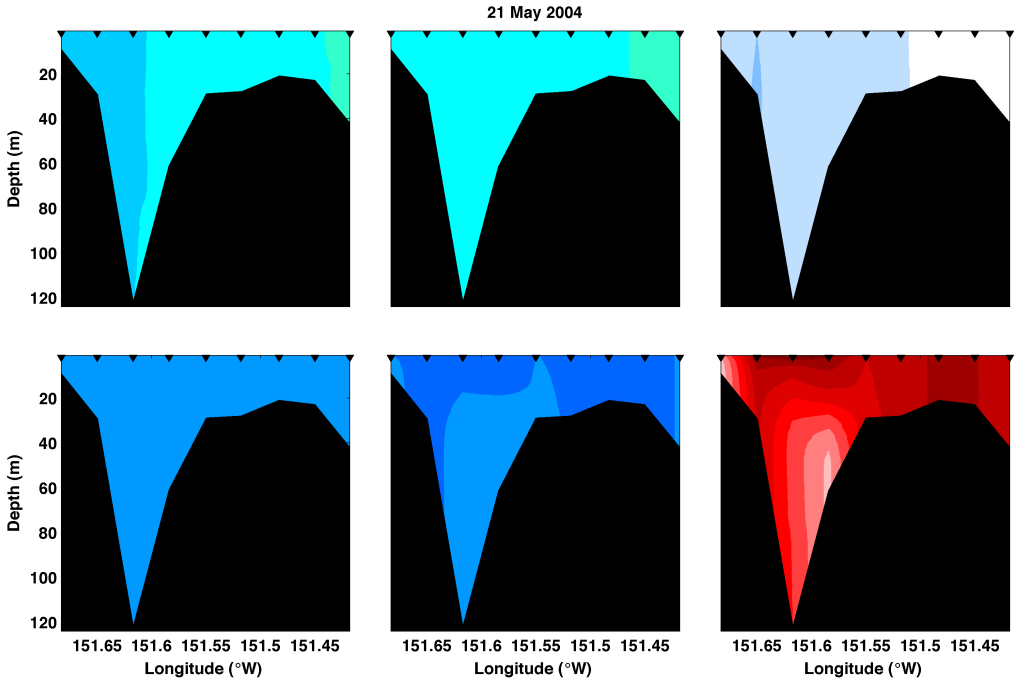

Figure A8.64: Transect 5.01 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

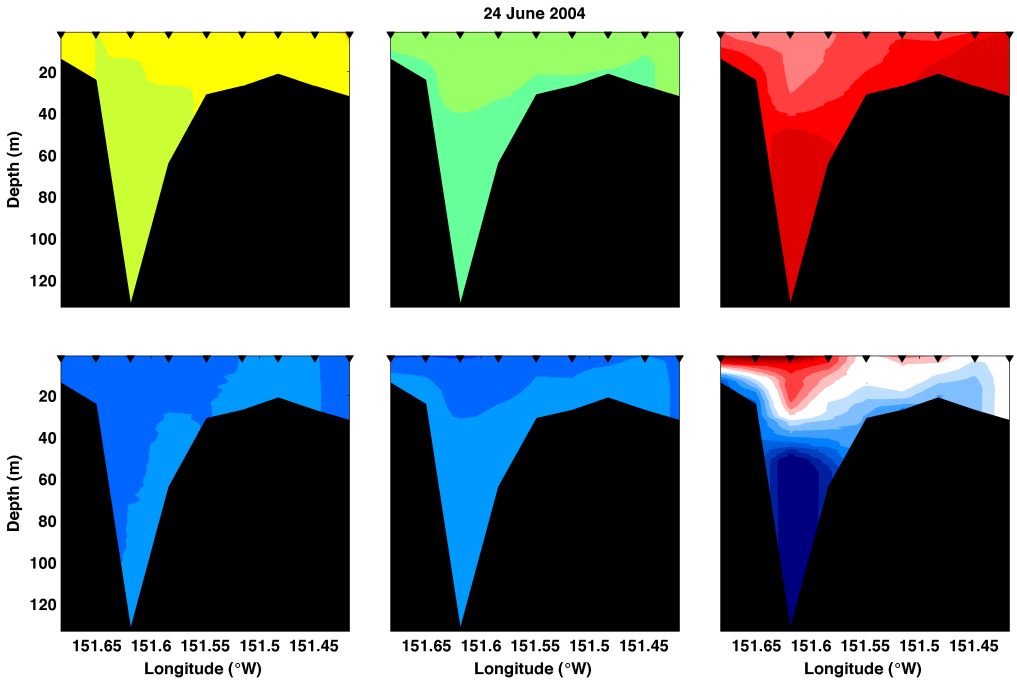

Figure A8.65: Transect 5.02 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

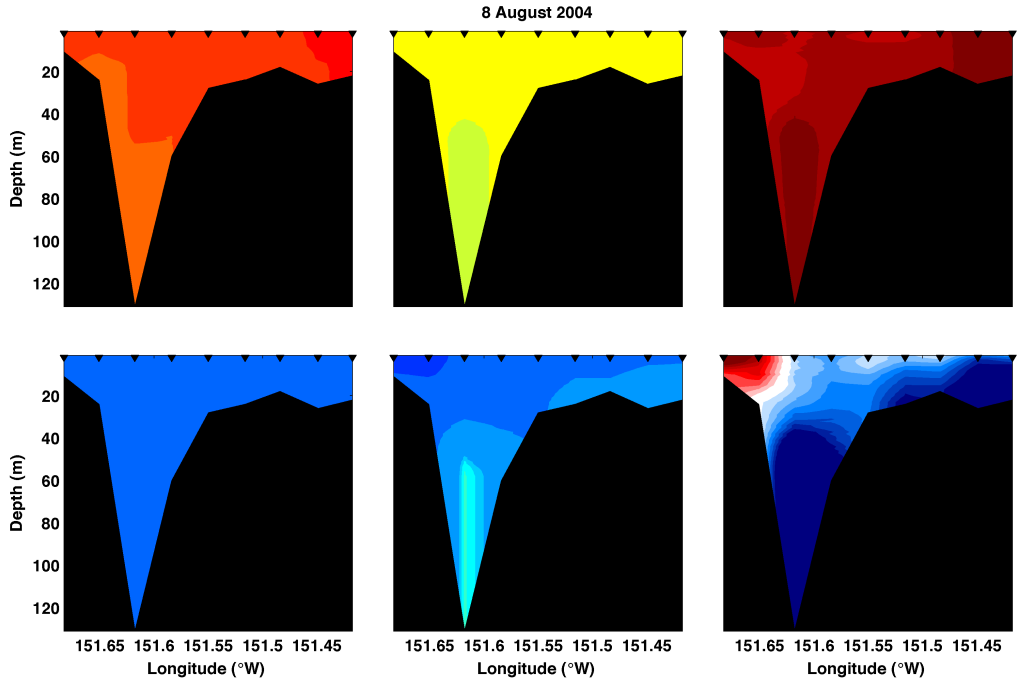

Figure A8.66: Transect 5.03 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

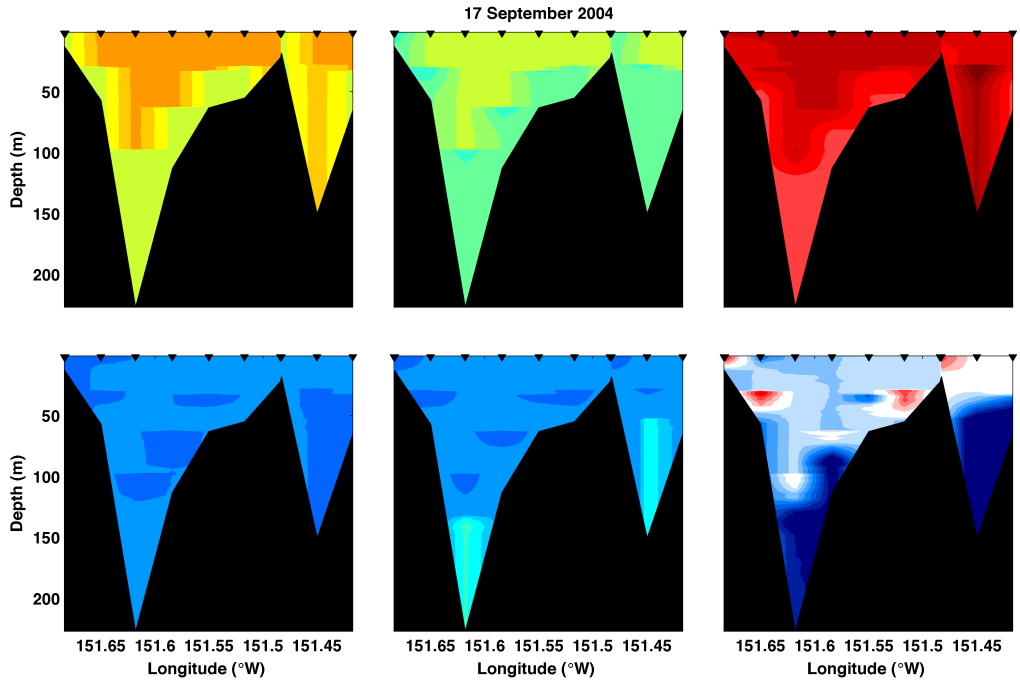

Figure A8.67: Transect 5.04 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

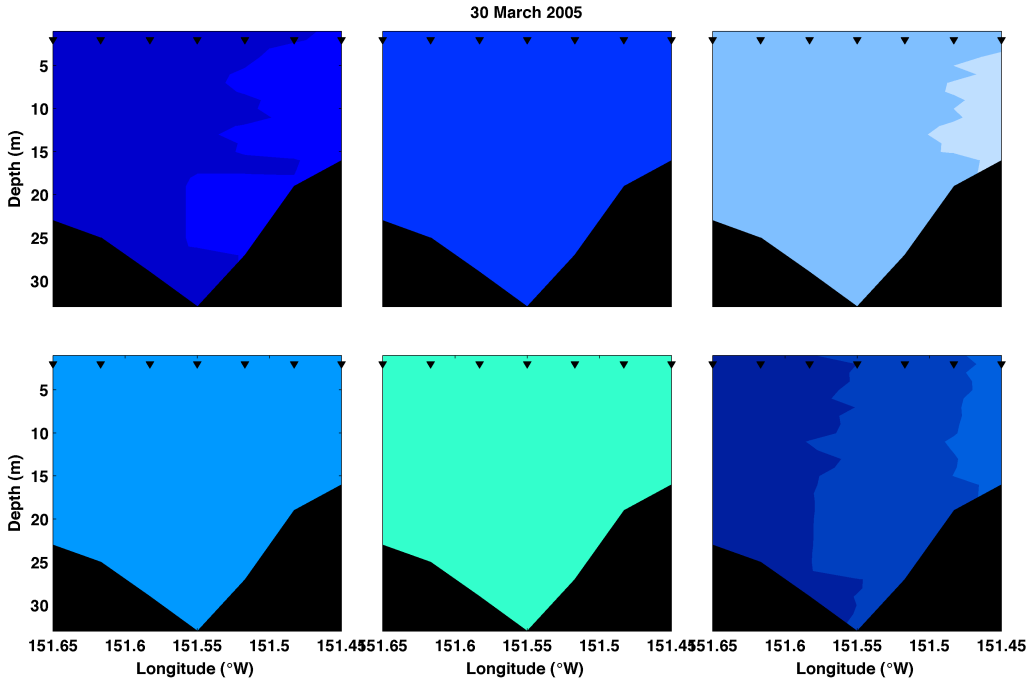

Figure A8.68: Transcect 5.05 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

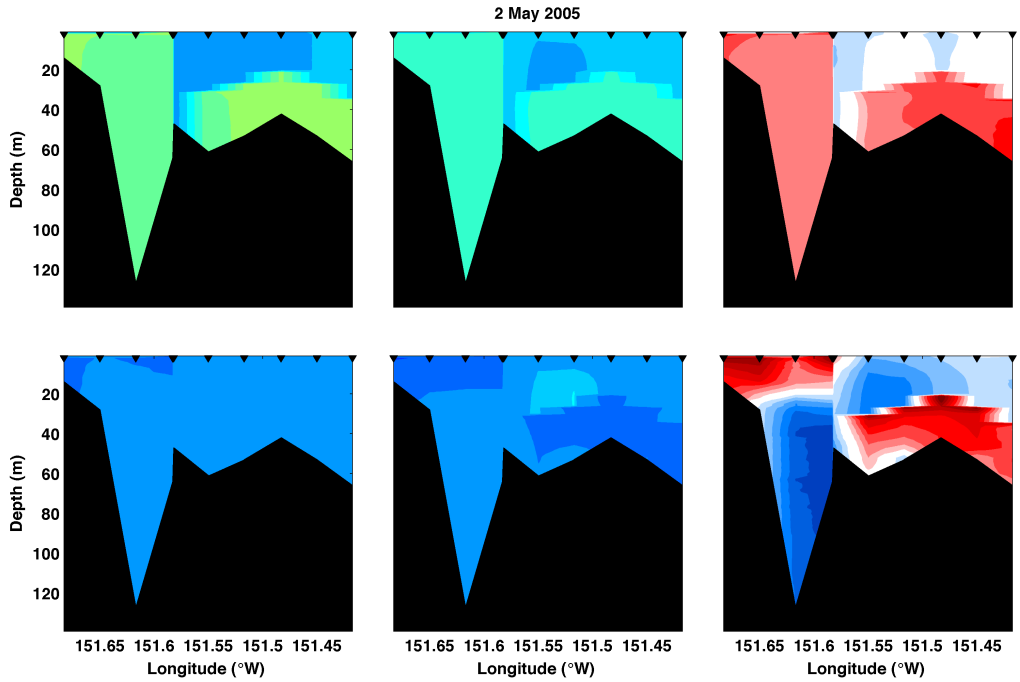

Figure A8.69: Transcect 5.06 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

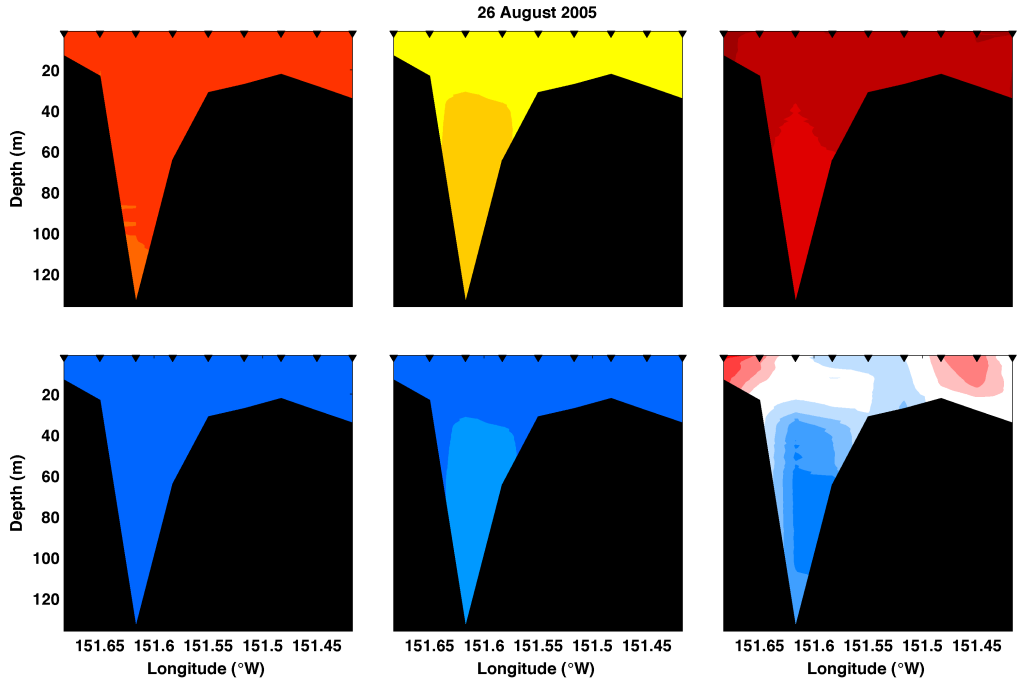

Figure A8.70: Transect 5.07 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

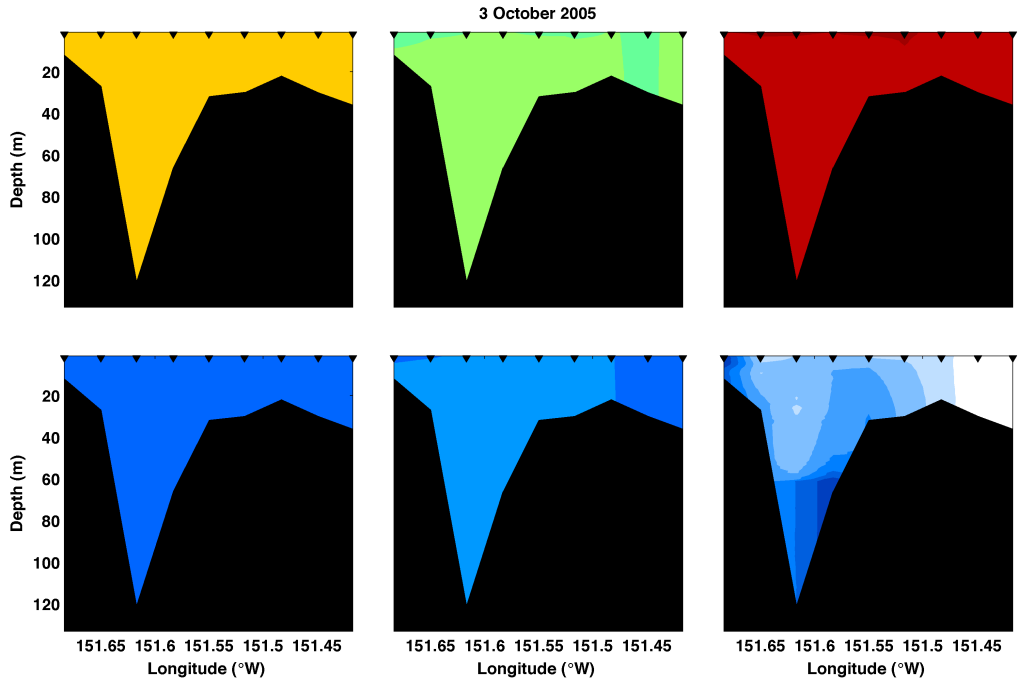

Figure A8.71: Transect 5.08 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

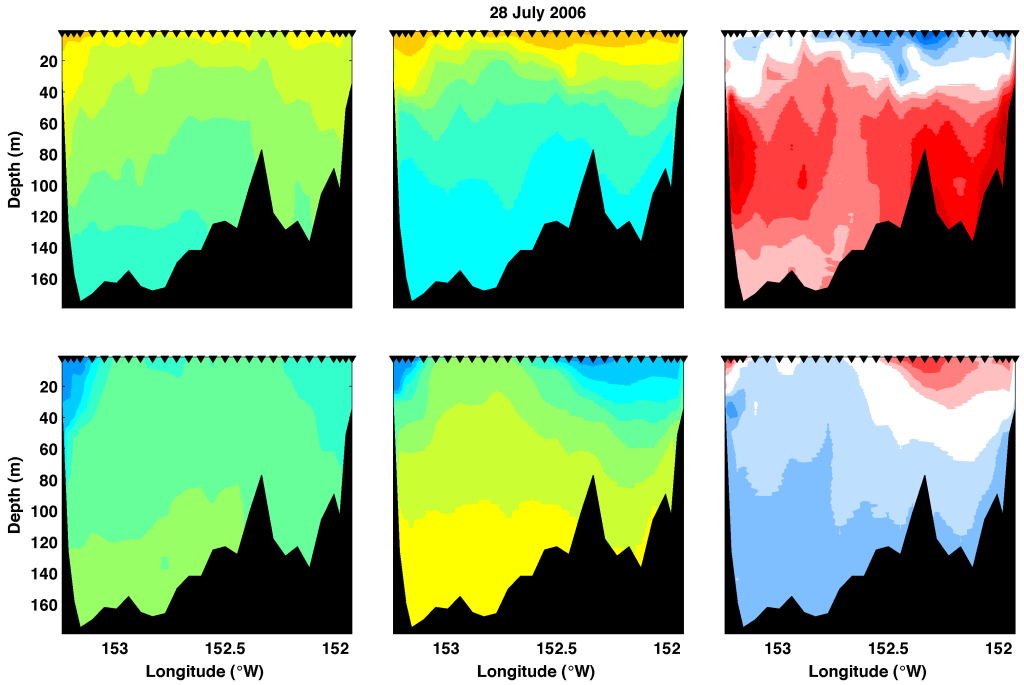

Figure A8.72: Transect 6.01 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

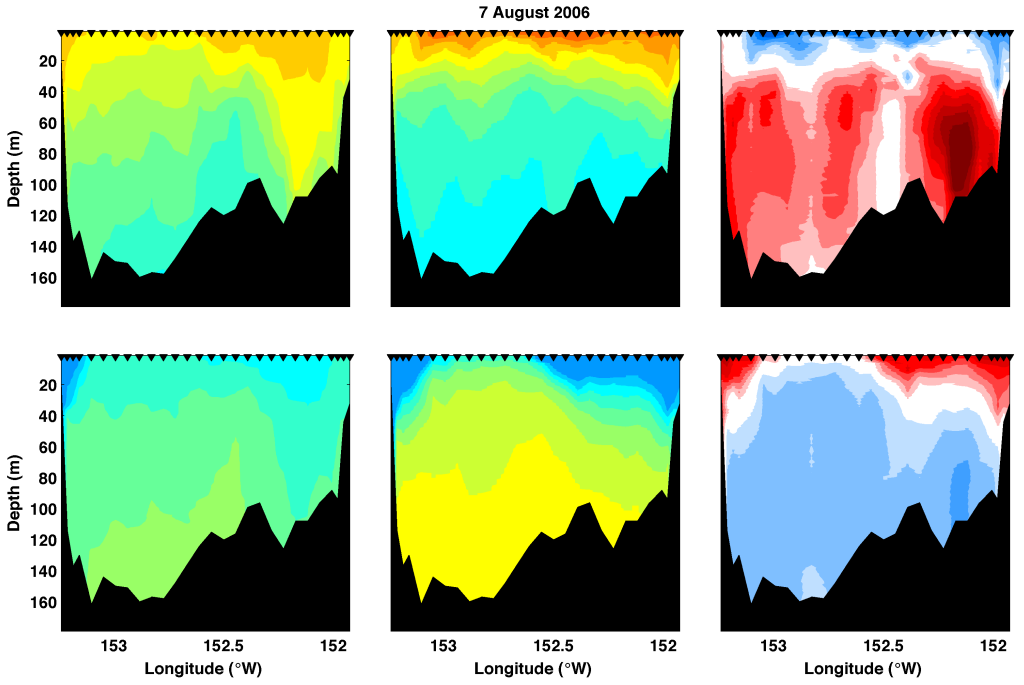

Figure A8.73: Transect 6.02 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

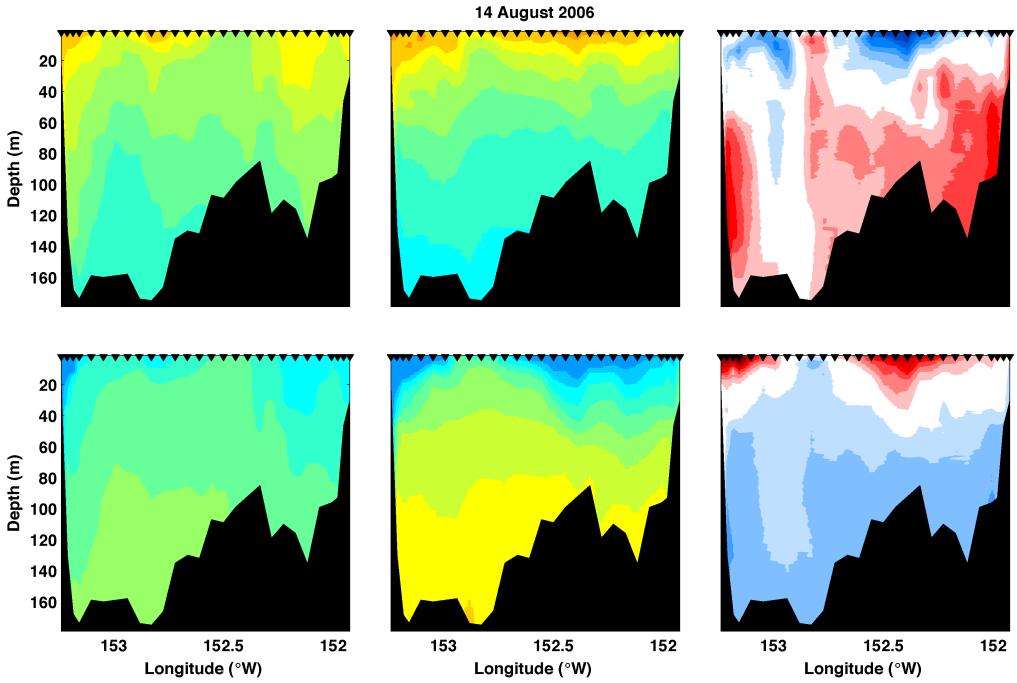

Figure A8.74: Transect 6.03 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

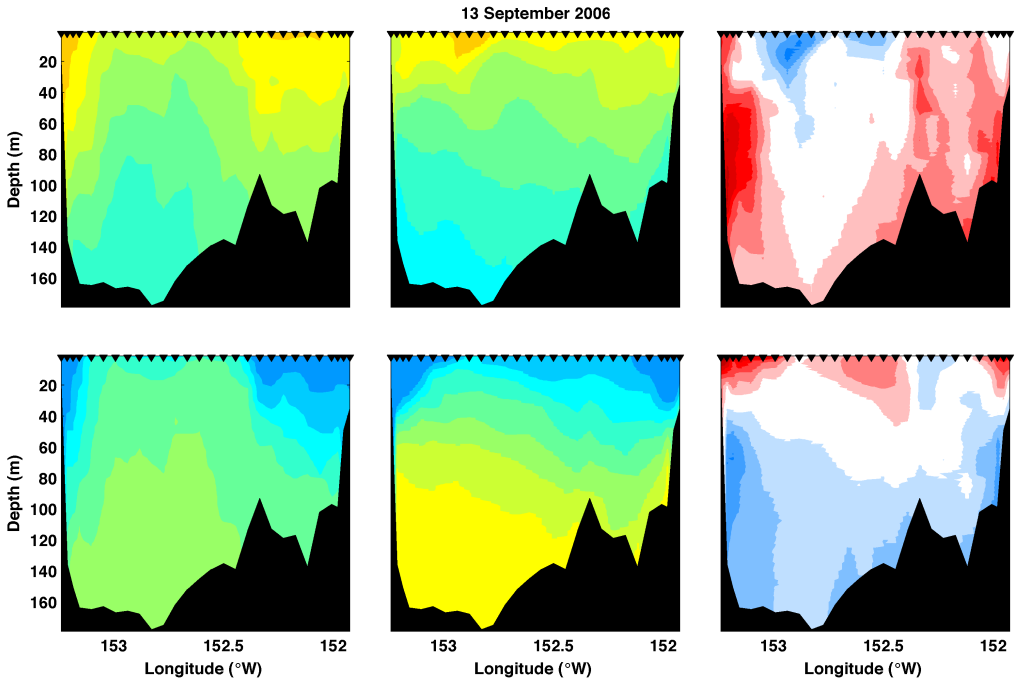

Figure A8.75: Transect 6.04 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

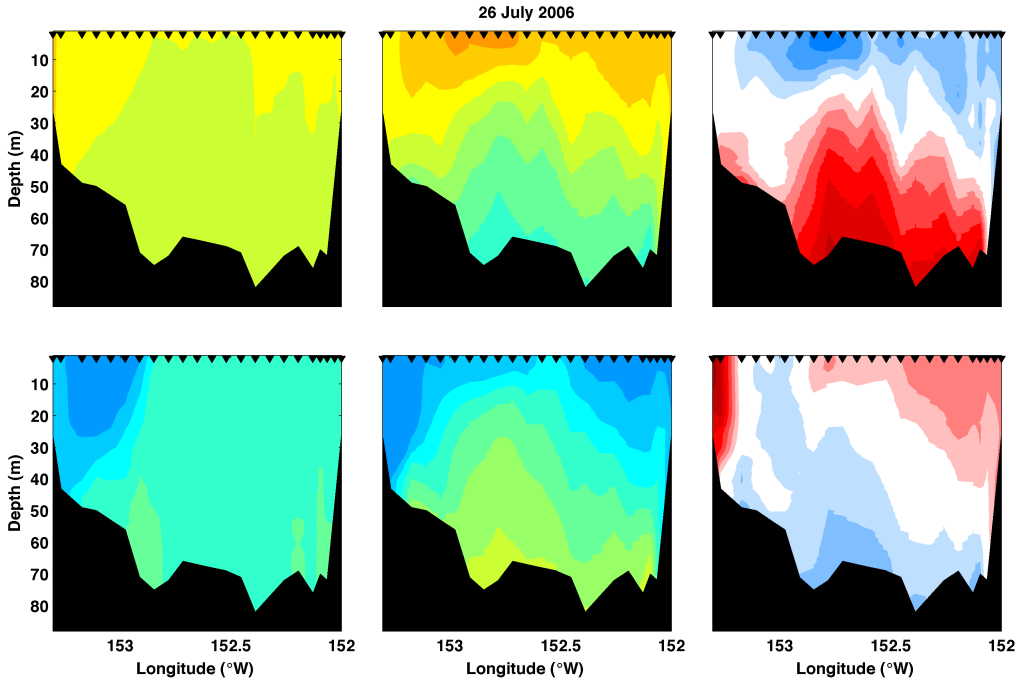

Figure A8.76: Transect 7.01 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

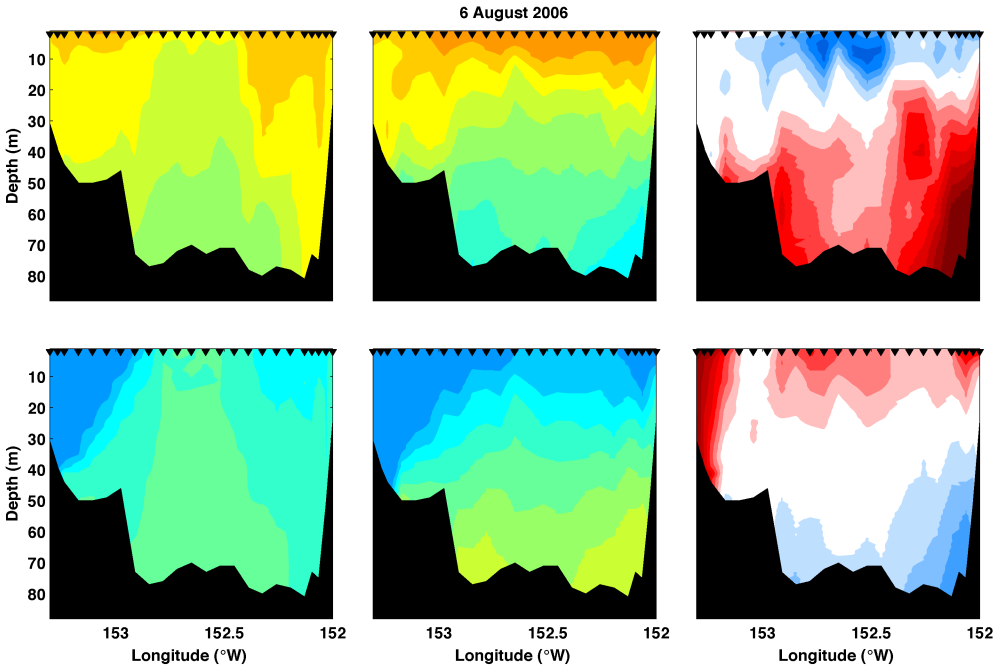

Figure A8.77: Transect 7.02 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

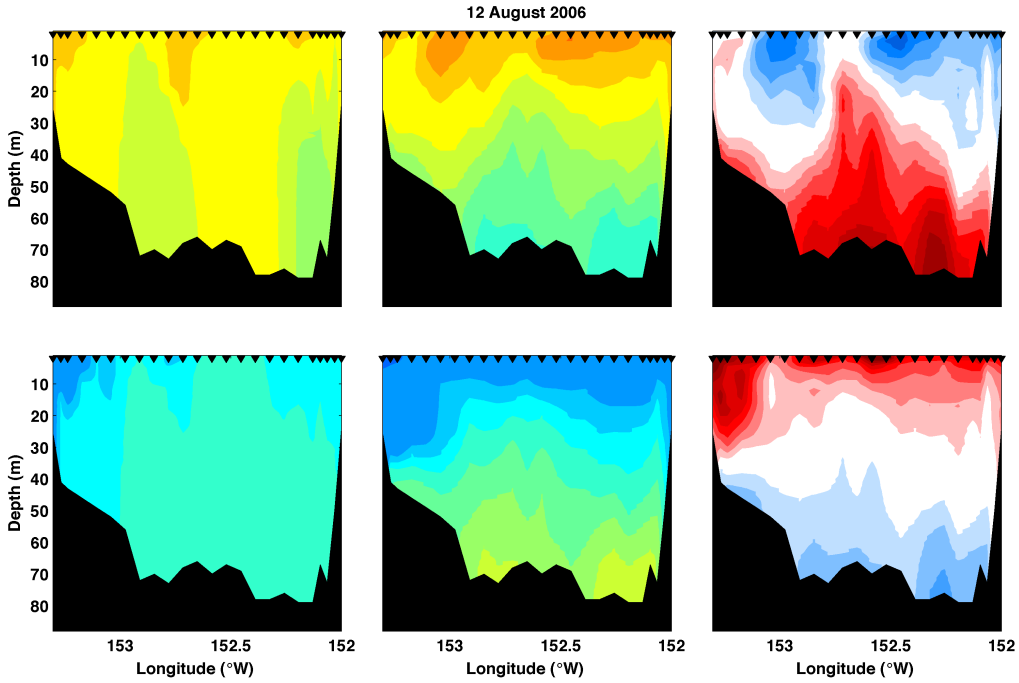

Figure A8.78: Transect 7.03 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.

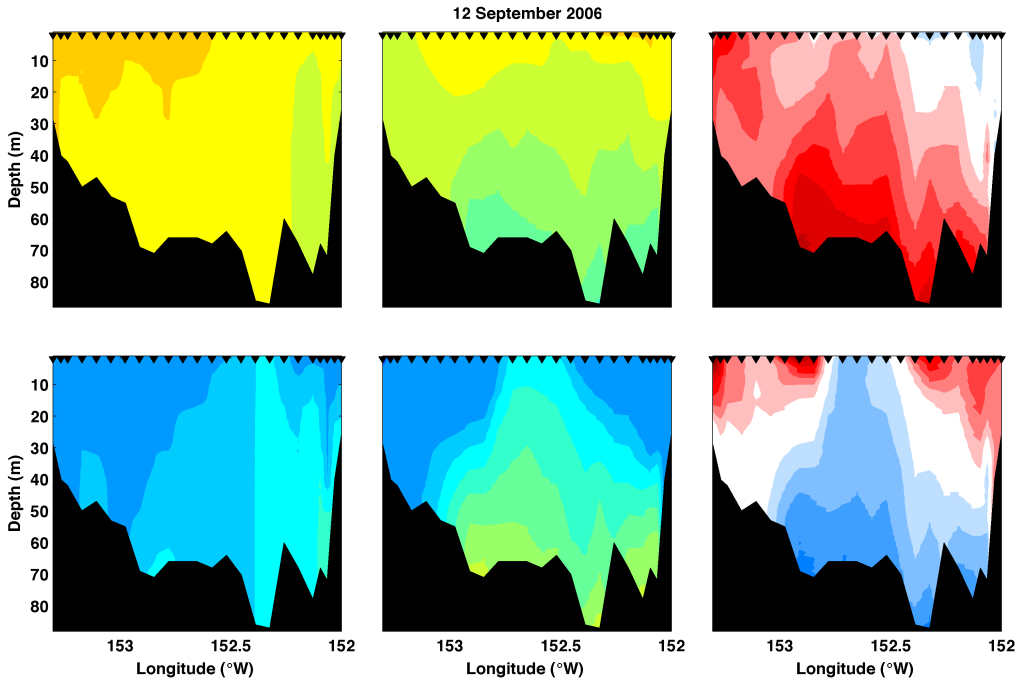

Figure A8.79: Transect 7.04 model-data comparison for temperature (top), salinity (bottom), with the observations shown on the left, the model in the center and the difference (observations-model) on the right.