Based on the observed data off the east coast of Philippines in fall of 2005, the geostrophic flow is analysed systematically, as well as the heat flux in this region. The North Equatorial Current (NEC) has a maximum velocity of 30 cm/s westward. Meridionally, the velocity of the Kuroshio Current (KC) is greater than 80 cm/s. The Mindanao Current (MC) has the extreme speed larger than 100 cm/s. Below the NEC, KC and MC, there are undercurrents respectively, and the latter two are known as the Luzon Undercurrent (LUC) and Mindanao Undercurrent (MUC). The volume transports of above currents are calculated, including the NEC of 58.7 Sv, the KC of 15 Sv, and the MC of 27.95 Sv and so on. Besides, heat flux is also estimated in this study. The net heat transport is about 1.45 PW outwards the region, with a same direction as the volume transport. At the same time, the ocean is proved of losing heat to the air by the sea surface net heat flux data, while the air-sea heat exchange is remarkably small compared with the heat transport inside the ocean. The whole heat budget including the surface and internal ocean caused the sea temperature reduction, at a rate of 0.75 centigrade degree per month, and the trend is corresponded with the drop of SST during that period.