The Argo program reached near-global coverage of the upper 2000 meters of the ocean in 2006 (excluding seasonal ice covered areas and marginal seas). Combining Argo salinity data with other observing system data presents an opportunity to document large scale salinity patterns on a basin and global scale. Mean monthly salinity anomaly fields are calculated on a one-degree grid from Argo float, CTD, glider, and moored buoy data for years 2006 - 2010. The anomalies are relative to the World Ocean Atlas 2009 long-term annual mean, preserving seasonal changes. Mean salinity anomalies for the 0-100m, 0-300m, and 0700m layers are calculated. Global mean salinity anomaly in the upper 100 meters is dominated on the monthly time scale by processes in the North Atlantic. Northern hemisphere salinity changes are not balanced by Southern Hemisphere processes resulting in yearly oscillations in salt anomaly on the global scale. There is no discernable seasonal cycle of salinity in the North Atlantic Ocean over the time period of the study. There are seasonal cycles in the South Atlantic, North and South Pacific, and North and South Indian, with the largest cycle in the North Indian. Only in the Pacific do seasonal cycles in the Northern and Southern Hemisphere nearly balance out, leaving a small increase in mean anomaly over the 2006-2010 period, mainly due to the South Pacific. The North Indian Ocean also exhibits an increase in mean anomaly. Both the North and South Atlantic have significant monthly anomaly changes 0-300 meters and 0-700 meters.