By definition, ice which survives the summer is classified as multiyear ice. Thus, multiyear ice concentration during the winter should be nearly equivalent to the ice concentration during the previous summer’s minima. This condition provides a reasonable criterion for evaluation of ice concentration and ice type retrieval algorithms from remote sensing datasets. From SSM/I data, the NASA Team algorithm estimates the multiyear, first-year and total ice concentrations throughout the sea ice season using combinations of the polarization and spectral gradient ratios. From ERS-1 SAR data, the remarkably stable contrast between multiyear ice and first-year ice provides consistent estimates of these ice concentrations in the summer. Multiyear ice concentration cannot be estimated from SAR data because free water on the surface effectively masks the backscatter signature of this ice type. A technique which takes advantage of the high backscatter of wind-roughened open water as a discrimination feature is effective for estimating the total ice concentration in the summer. With a yearlong (Jan 92 to Jan 93) dataset from the Beaufort Sea, we found that our analyses provide a very stable and consistent estimate of the multiyear ice concentration in the winter which is nearly equivalent to the ice concentration estimated at the end of the previous summer. We contrast this with the variability of the MY ice concentration and ice fraction estimates obtained using SSMI data. The Team algorithm produces ice concentration and multiyear ice estimates which are consistently lower than those from the SAR data. The reasons for these discrepancies are suggested. The implication of this biases on the understanding of the Arctic Ocean ice balance and calculation of the actual ice cover are discussed.