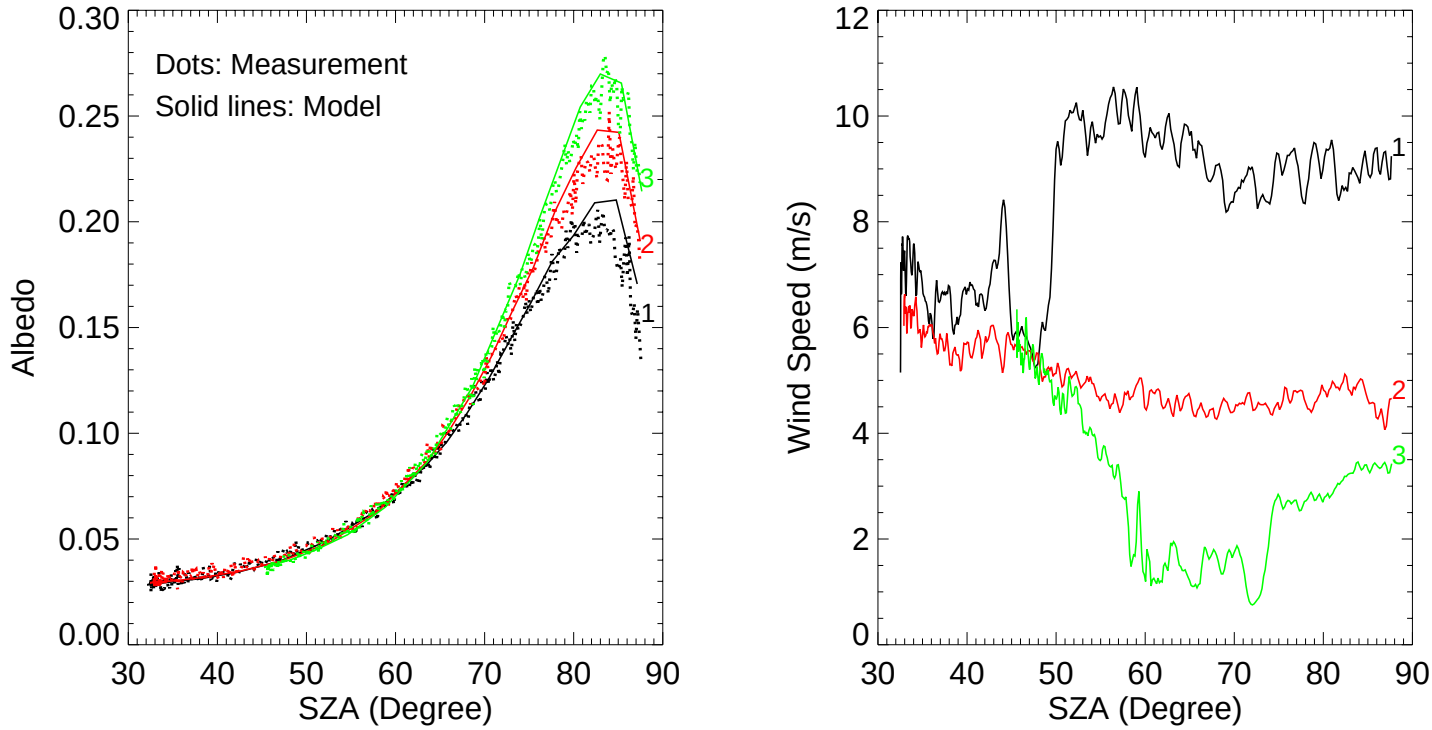

Fig.1. Effects of wind speed on ocean surface albedo (670 nm). The left panel shows the COART modeled and measured surface albedo during three afternoons. The aerosol optical depths were small but wind speeds were very different in these selected days. The right panel shows the observed wind speed for each afterenoon. Different colors are for different days.

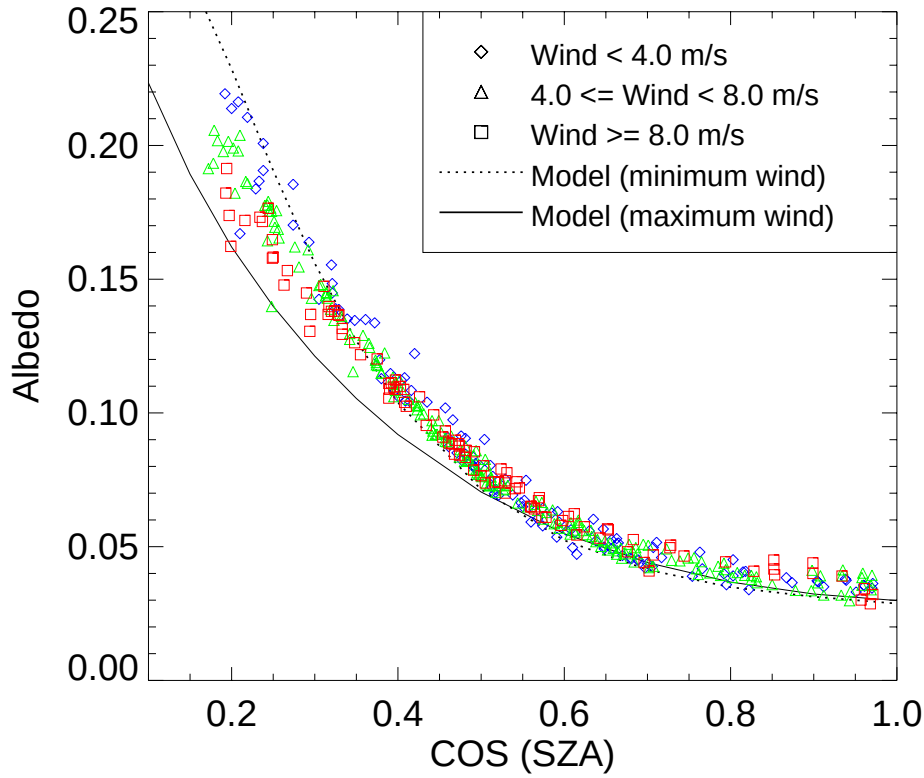

Fig. 2. Wind effects on ocean surface albedo. The observed albedo at COVE as a function of the cosine of SZA are plotted in three wind speed categories. The dashed line and the solid line are the modeled albedo with the minimum wind (0.48 m/s) and maximum wind (14.0 m/s) of the observations, respectively. The mean AOD and PW of measurements were used in model calculations.

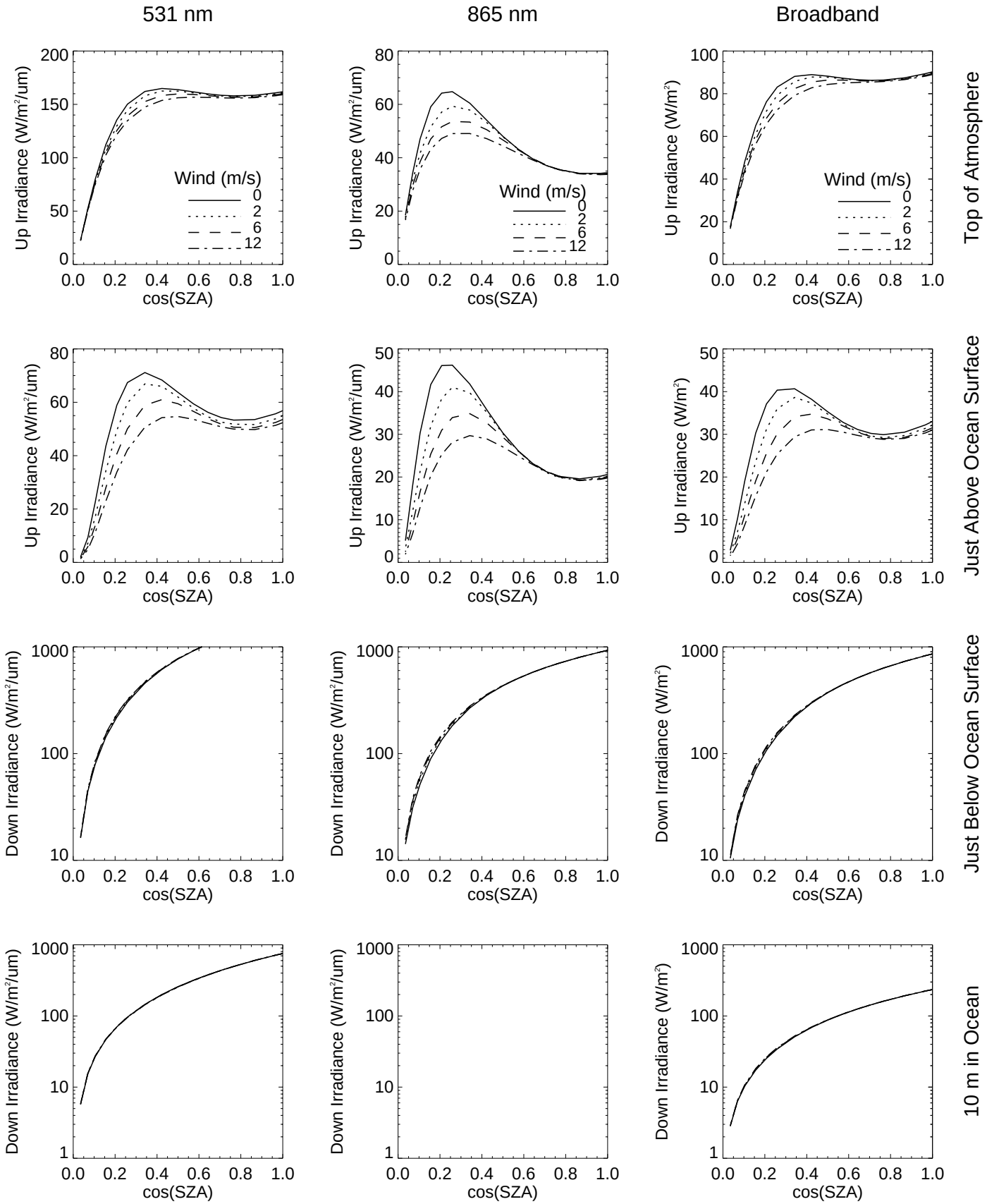

Fig. 3. Modeled irradiances versus cos(SZA) with upwelling irradiance in the atmosphere and downwelling irradiance in the ocean, for different wind speeds and different wavelengths. Clear sky; AOD=0.1; Chl=0.1(mg/m3).

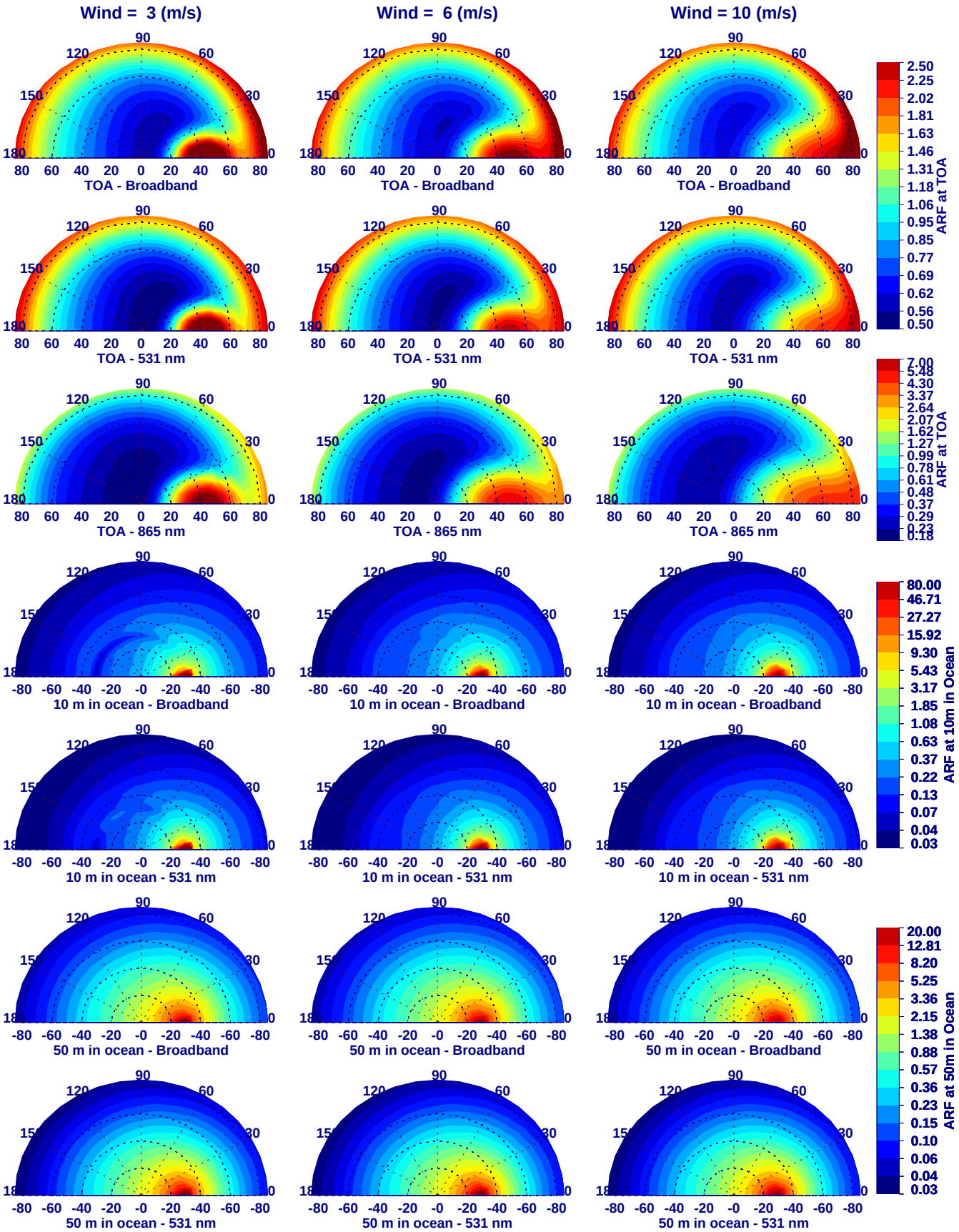

Fig 4. Model simulated upwelling radiance field at the top of atmosphere (TOA) and the downwelling radiance field at depths of 10 m and 50 m in the ocean for wind speeds of 3, 6 and 10 m/s and for three wavelength sets (broadband, narrowband at 531 nm, and narrowband at 865 nm). The SZA is 40 degrees.

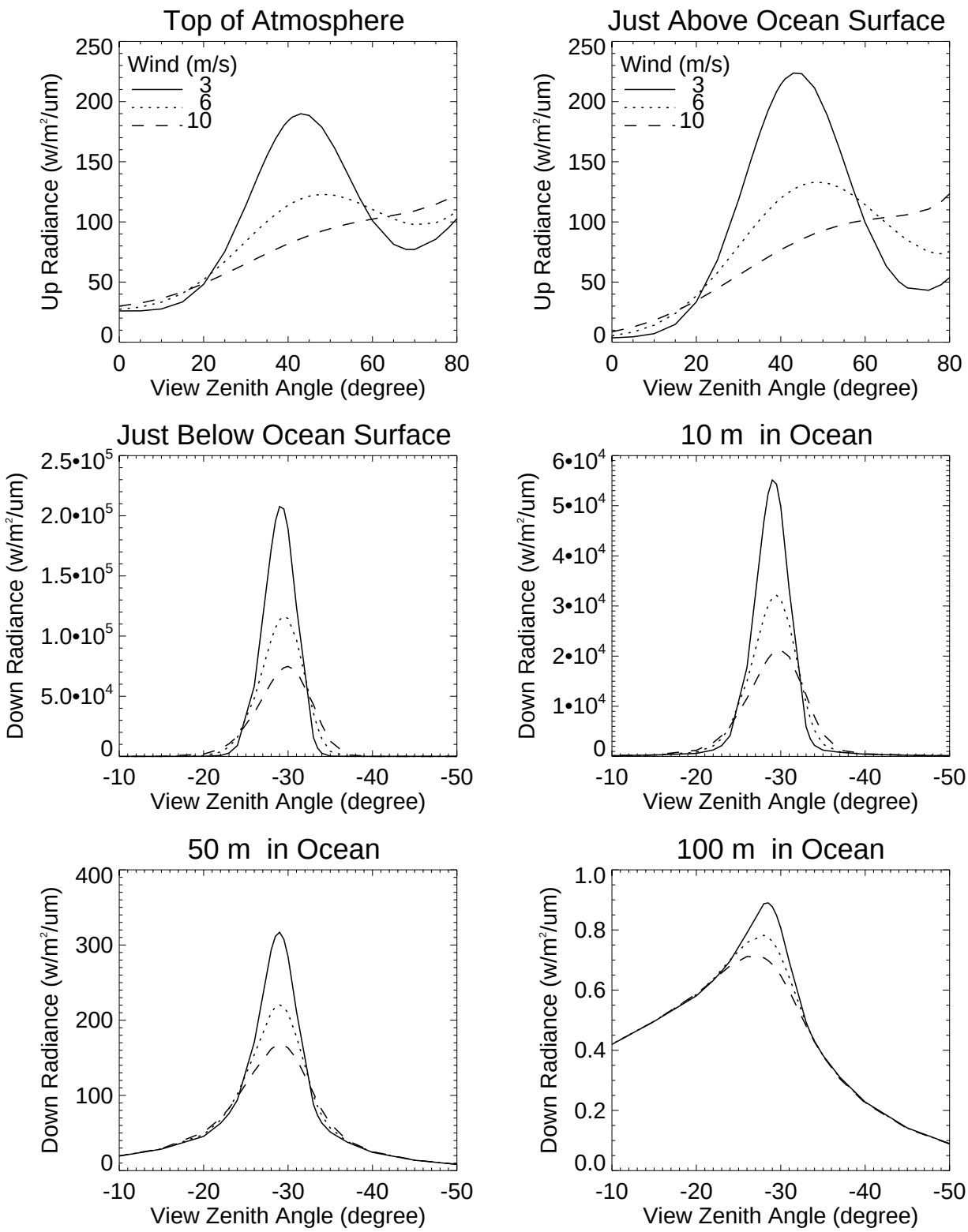

Fig 5. Effects of surface roughness on radiance distributions at 531 nm in the components of the principal plane containing most of the reflected solar beam in the atmosphere (top row), and most of the refracted solar beam in the ocean (middle and bottom rows).