

Reply

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We appreciate the comments by Dr. Leipper on our observations about the winter atmosphere on the northern California coast. We divided up the coastal winds into the three dominant categories in order to present the salient features of the larger view more relevant to coastal upwelling and to limit the scope of the paper to a manageable size. The author is quite correct that there are short-term variations that we did not elaborate upon. The infrequent, short-duration, high-speed cross-coast winds are quite interesting, but little could be done to explore these events without extensive supporting measurements in the boundary layer and middle atmosphere. The scarce data coverage of the north coast and the complicated topography make it almost impossible to explore the shorter-scale events of a few hours.

The author's comment on the offshore winds at Arcata, on the coast some 250 km to the north, are interesting. However, this station is probably in a different mesoscale regime, as it is so far away and separated by

the major coastal feature of Cape Mendocino. The winter winds as measured by the coastal National Data Buoy Center buoy near Arcata are weaker and more variable than the coastal buoys nearest to our study area at Stewarts Point (Dorman and Winant 1995). In addition, the coast at Stewarts Point is on a narrow coastal plane (order 1 km) backed by a series of ridges parallel to the coast. In contrast, at Arcata the coastal plain is much wider and is backed by a major river drainage system that cuts across the coastal mountains, which may encourage low-level, cross-coast winds. Thus, our impression is that low-level, cross-coast winds are more common at Arcata than Stewarts Point.

The dynamics of fog formation in the area are also intriguing. While important for applied reasons, it occurs only a relatively small minority of the time. Too few independent cases occurred during our field program for us to draw any statistically sound conclusions. Lack of a sufficient data network on the north coast prevented an investigation of the cases that did occur during our field program.

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