



Aeolian bedform dynamics within a barchan dune train

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Barchans typically exist in a state of dynamic disequilibrium, constantly adjusting in form and moving as part of larger 'train' of dunes or broader dunefields. Within the Huab Valley, in the Skeleton Coast National Park, Namibia, several dune trains migrate northwards out of the main river valley under a unidirectional wind with typical migration rates for a 5 m high barchan dune approximately 20 m/yr. We use terrestrial laser scanning to capture the geomorphology and mobility of barchan dunes, dome dunes and protodunes over timescales of weeks and years, comparing dune form change within the train in terms of height, volume and planform shape. We find that barchan dunes in a similar position within the dune train have consistent size and shape but that some dome and protodunes reduce in size over time. Our findings suggest that interactions and sediment supply are important to consider and may explain some of the differences in dune dynamics within the dune train.