Characterization of beach faces using Airborne Lidar Technology, Southern Maine Coastal Area

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Lidar is one of the modern technologies which can be effectively practiced in remotely sensed study of beach characteristics. The lidar colour band spectrums were analyzed to identify the beach characteristics in southern Maine beaches during this study. The beach characteristics of outwash, beach face, low tide terrace, berms and cusps were observed in lidar IR-band colour map. In addition, beach faces are clearly indicated in IR statistical analysis plots. The red band spectrum indicates low tide terrace, beach face in northern and low tide terrace, beach face and outwash in southern beaches. The variable intensities of red band suggested that it's higher reflection capability from coarse grained compared to fine grained sediments. Though, whole beach features appeared in green band colour map in northern beach, only outwash is indicated on south. The results of lidar green band suggested that the reflection capability of compacted fine grained is higher than the unconsolidated coarse-grained sediments. The analytical results of green band indicated suitability of green band for fine grained beach investigations.

The comparison of beach characteristics and surface sediments with lidar generated beach features indicated different beach features in south and north ends. South beach mainly consists of coarse grained sediments and steep slopes with prominent cusps. Field observations show the remarkable variation of sediment distribution from north to south dominantly with fine sand flat beach.

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