High accuracy coastal flood mapping for Norway using LiDAR data - Revised figures

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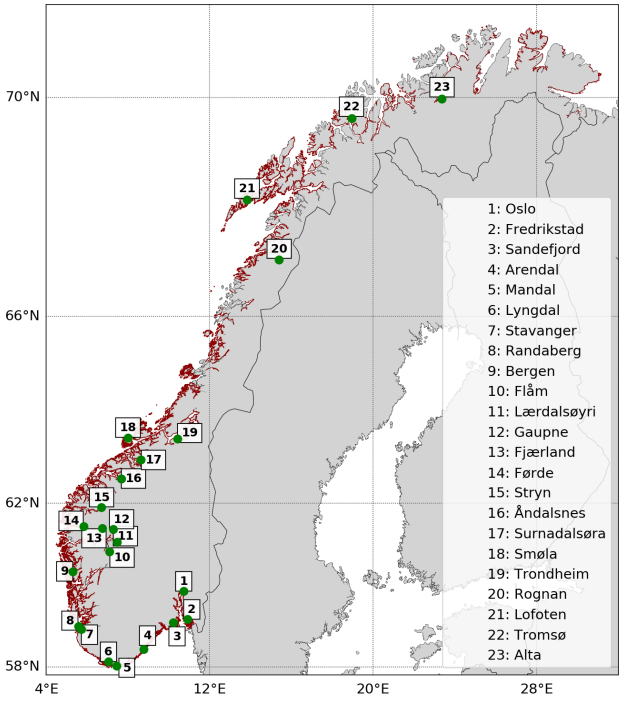

Figure 1. Red lines indicate areas covered by the inundation maps per December 2018. Information for all water levels is not available for all mapped zones due to a lack of knowledge on ocean tides for parts of the coast. In these zones, only the storm-surge return heights can be calculated because they are not referenced to MHW. The green markers indicate locations discussed in the text.

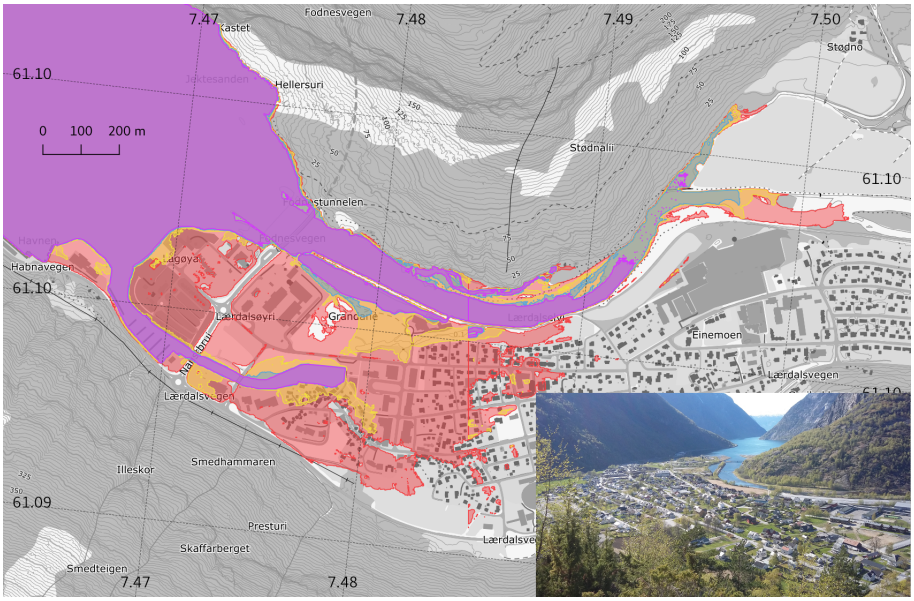

Figure 2. Stack of inundation maps covering the village Lærdalsøyri located on a glaciofluvial delta at the head of Sognefjorden. Violet: Present MHW. Green: MHW for 2090 (0.58 m above present MHW). Orange: Present 200-year storm surge (1.00 m above present MHW). Red: 200-year storm surge for 2090 (1.58 m above present MHW). Inset: Photo of the village Lærdalsøyri (Photo: Magnhild Aspevik)

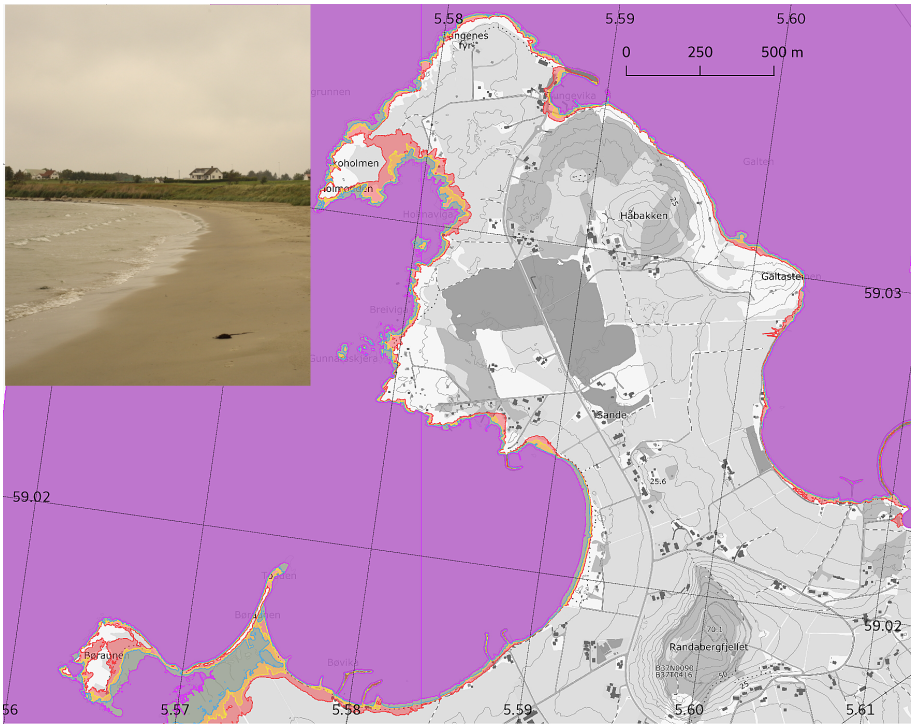

Figure 3. Stack of inundation maps covering Randaberg located on soft moraine in the southwest of Norway. Violet: Present MHW. Green: MHW for 2090 (0.79 m above present MHW). Orange: present 200-year storm surge (0.99 m above present MHW). Red: 200-year storm surge for 2090 (1.78 m above present MHW). Inset: Soft sand dunes at Sandestranda close to Randaberg. Photo: Oda R. Ravndal.

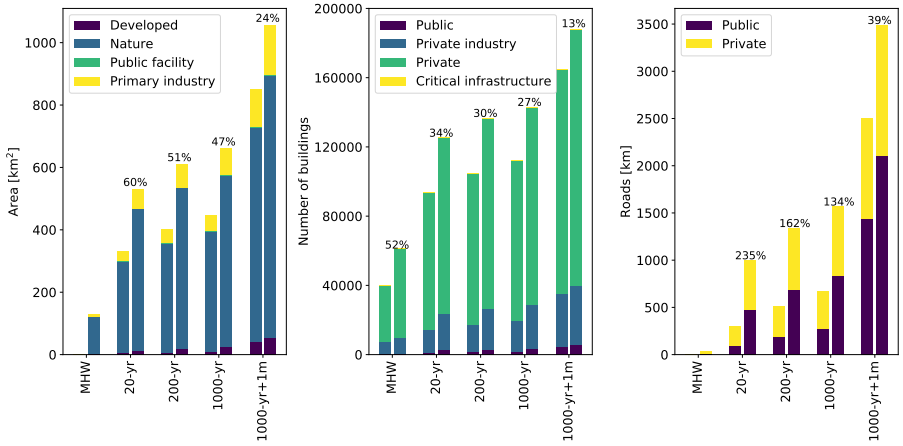

Figure 4. The bars indicate the size of areas (left), the number of buildings (middle), and the length of roads (right) affected by sea-level rise and storm surge in Norway. For each water level, the left and right bars indicate affected objects at present and for 2090, respectively. Percentages on top of right bars indicate total's change from now to 2090 due to sea-level rise.

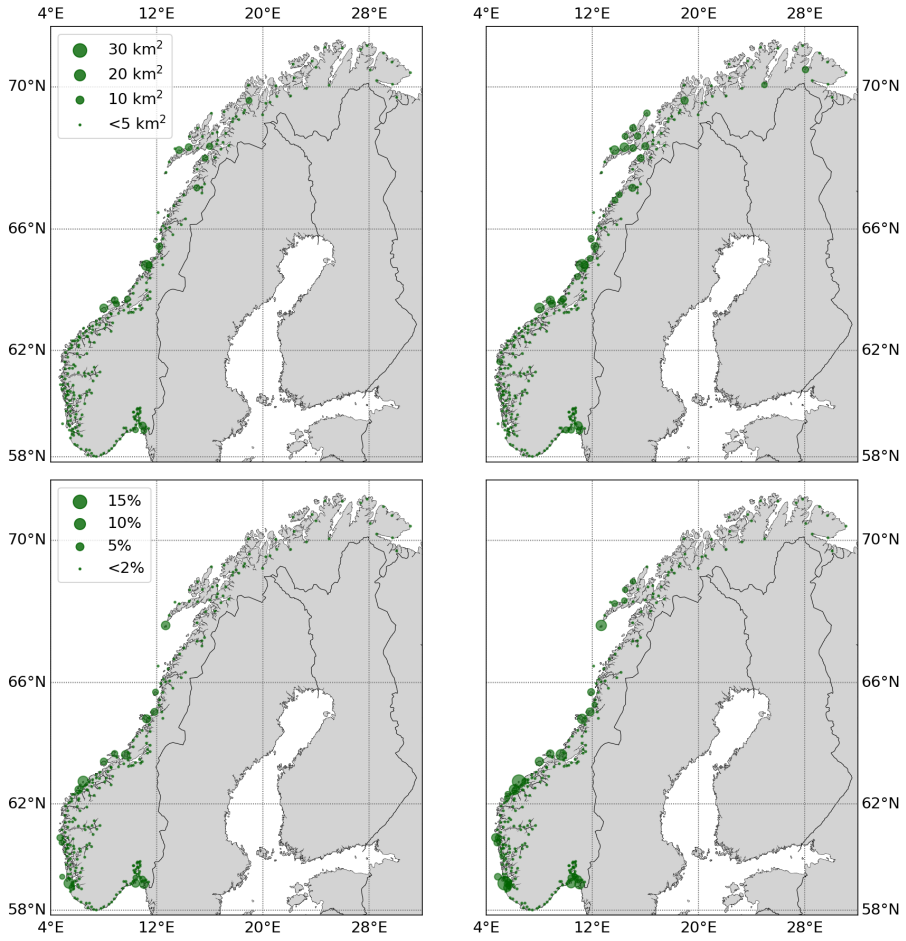

Figure 5. Affected land areas due to a 200 year storm-surge hazard at present (left figures) and for 2090 (right figures). The radius of the bubbles is for each municipality proportional to the size of flooded land area (upper figures) and flooded land areas as percentage of the municipality's total area (lower figures).

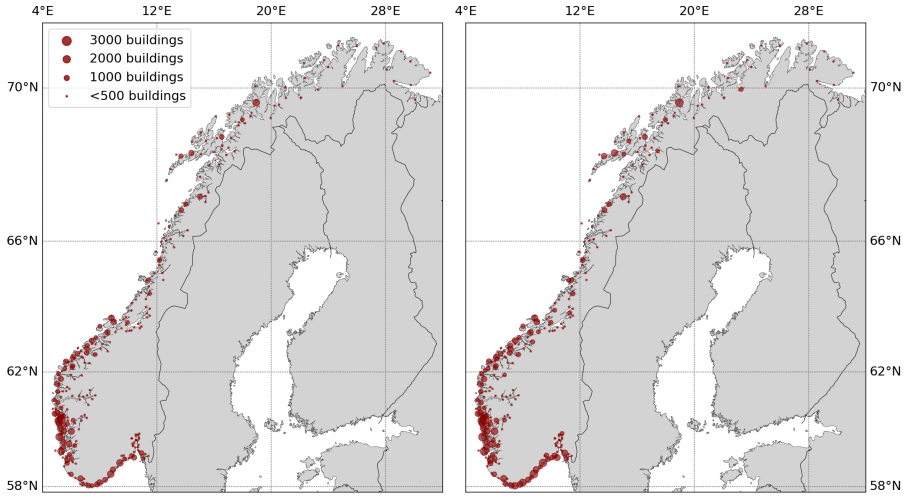

Figure 6. Affected buildings due to a 200 year storm-surge hazard at present (left) and for 2090 (right). The radius of the bubbles are proportional to the number of exposed buildings.

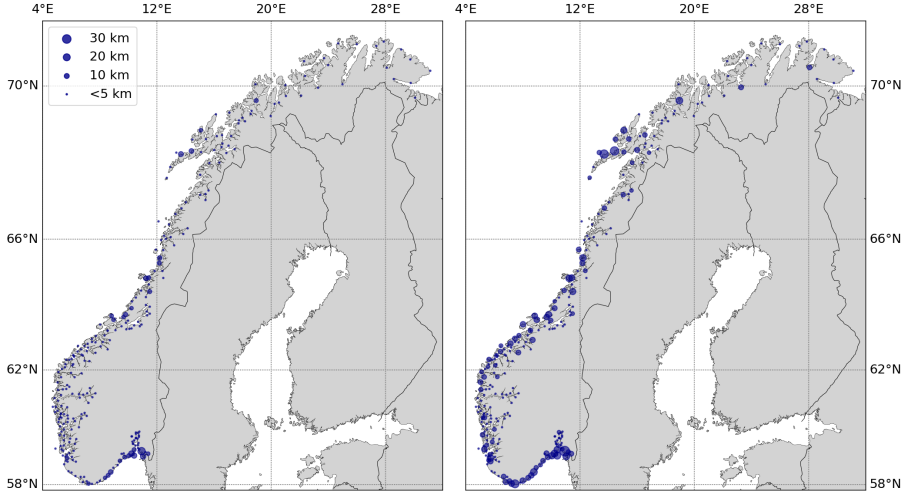

Figure 7. Affected roads due to a 200 year storm-surge hazard at present (left) and for 2090 (right). The radius of the bubbles are proportional to the length of exposed roads.

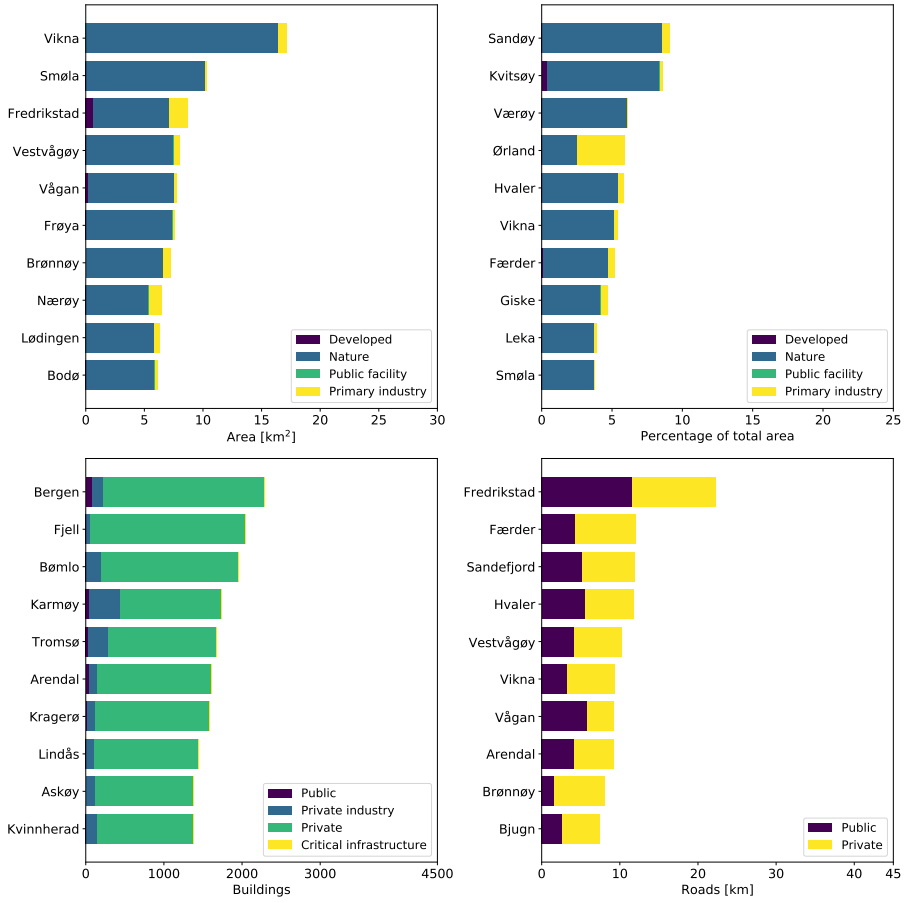

Figure 8. The ten municipalities with most land-areas, buildings, and roads affected by a 200-year storm-surge hazard at present sea level.

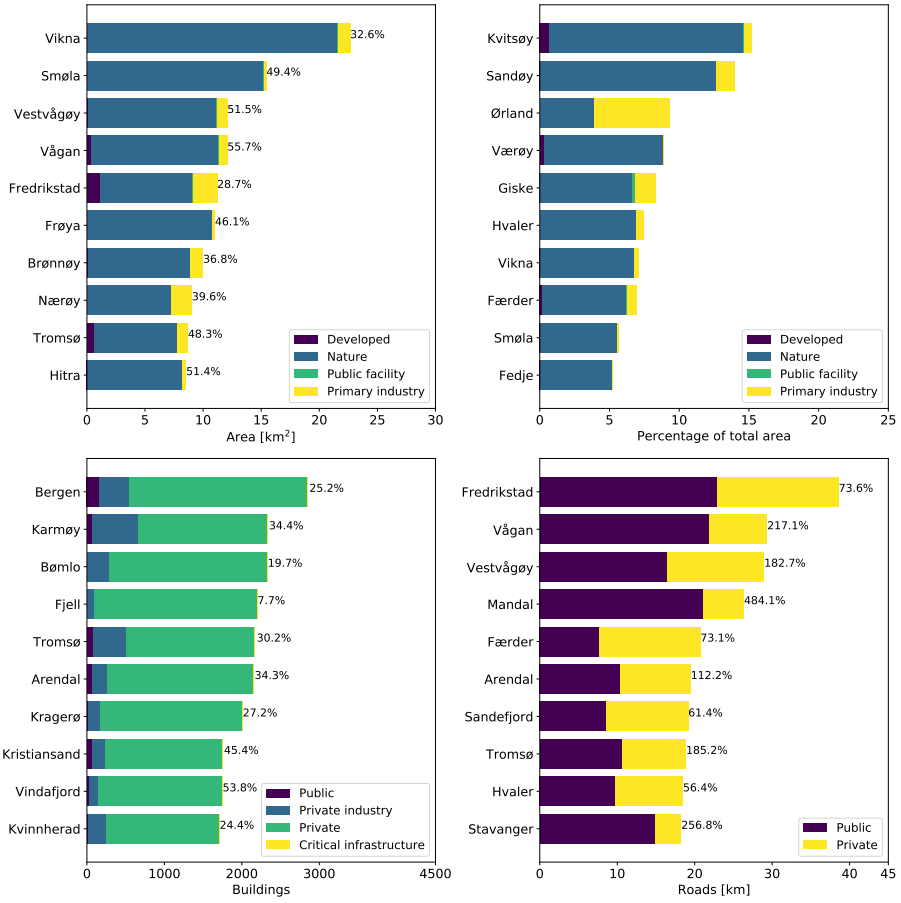

Figure 9. Similar as Figure 8, but for 2090. The percentages indicate total's change from now to 2090 due to sea-level rise.