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Why is there a large submarine landslide in the Jan Mayen Ridge, north Norway?

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This paper deals with the formation process/mechanism of a large submarine landslide in the Jan Mayen Ridge. The Jan Mayen Ridge, being a continental sliver, is ∼250 km long in N-S direction with a flat plateau of ∼800 m in water depth standing on an abyssal plane of 2500-3000 m in water depth. There is only a large submarine landslide scar of ∼50 km wide in the central east side. In the central east side, the internal geologic architecture is characterized by an Eocene-Oligocene sedimentary sequence, which tilts eastward. This sedimentary sequence is cut by large normal faults, that have formed by the spread of the Norwegina-Greenland Sea since 20 Ma. The wasted mass of the large submarine landslide could slip down along the bedding plane and/or the normal faults dipping to east. Thus, the slide form a big spoon-shaped basin. The slide scar was collapsed retrogressively to make a small spoon-shaped basin on the upper part of the big basin. There are long channels from the retrogressive slide scars to the lower basin. The retrogressive slides would continue to discharge progressively gravity flows to make the long channels on the basin after the large submarine landslide occurred. On contrary to the slide region, the sedimentary sequence has a large anticline in an east foot of the ridge in other regions. This anticline could be an obstruction to a large submarine landslide. Thus, the geologic architecture plays an important role in the formation mechanism of a large submarine landslides in the Jan Mayen Ridge.