

Attachment I:

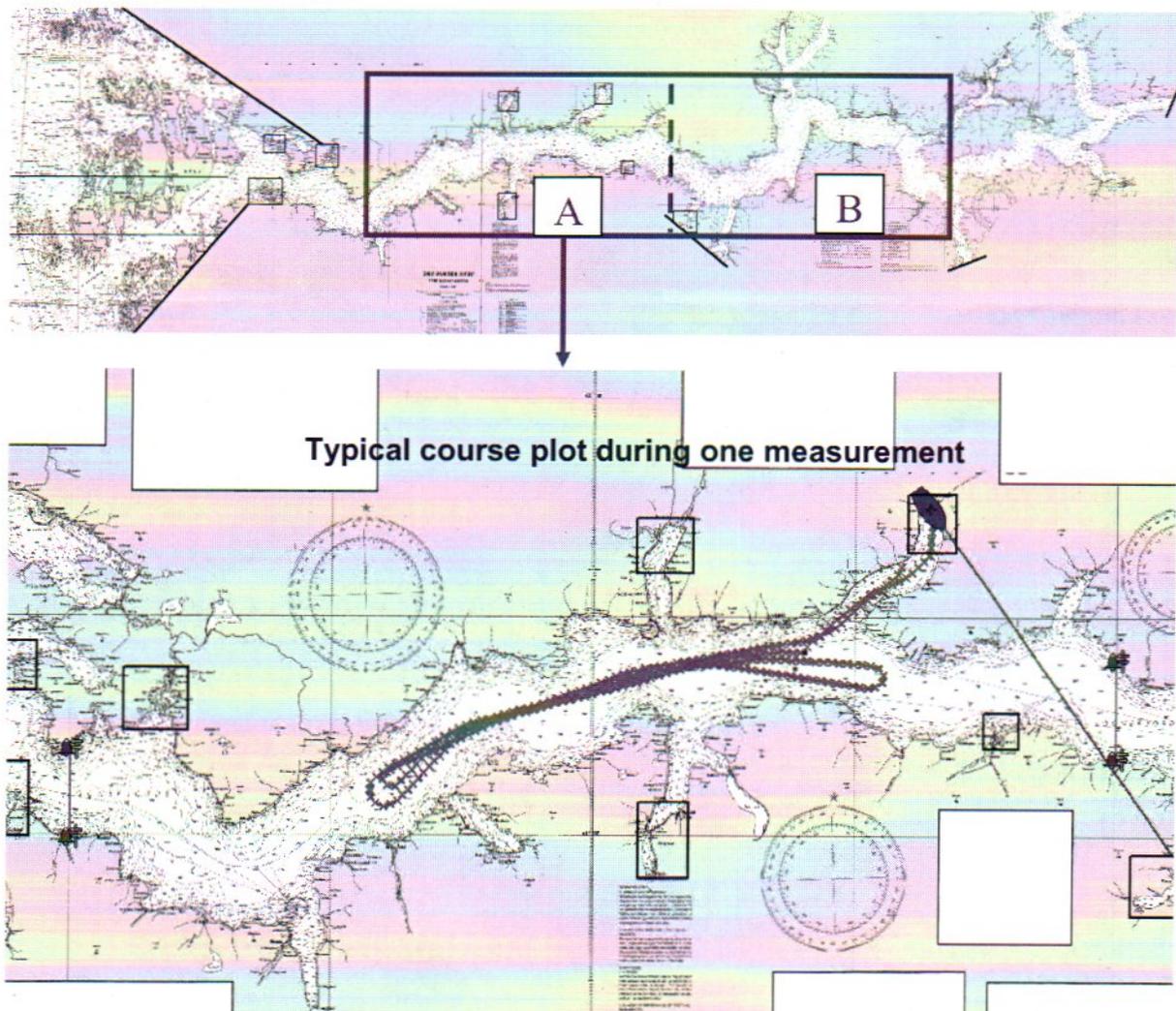
## GEOGRAPHICAL AREA IN WHICH SHIP WILL OPERATE

### **Area A and B**

The geographical area of Sognefjord (Norway), in the surrounding area of Høyanger (Fig.1, upper part, area A), has been proven in previous cruises to be optimally suited for the planned measurements. Even in case of heavy winds deployment and recovery of the towing systems from RV ELISABETH MANN BORGESE is feasible in most cases. The Høyanger-Fjord, a small branch of the Sognefjord, provides a sheltered position.

It has turned out during EMB084 in 2014 that very bad weather can prohibit measurements in area (A). Therefore, the geographical area for EMB216, as for EMB112, EMB144, EMB164 and EMB196, is extended inland by area (B) in order to avoid cancellation of measurements in case of insufficient conditions in area (A).

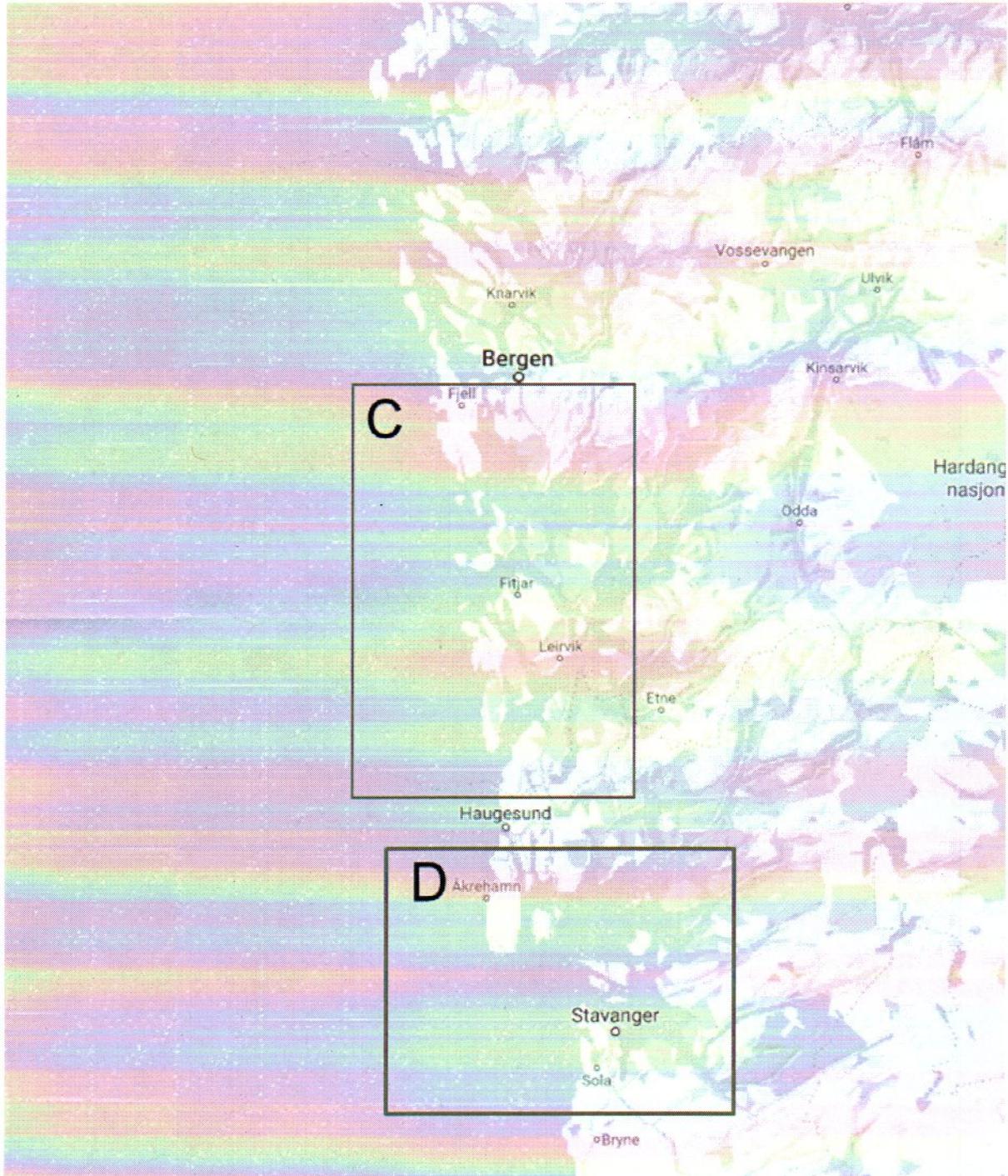
Generally, measurements are planned in the Høyanger area (area A) in the same way as during EMB056 (2013), EMB084 (2014), EMB112 (2015), EMB144 (2016), EMB164 (2017) and EMB196(2018). A track from a single measurement day is depicted exemplarily in Fig. 1 (Fig.1, lower part). Due to the weak currents in the Sognefjord the use of free drifting buoys for the calibration measurements is feasible for many hours without significant change in position.



*Fig. 1: (upper part) Geographical area in which ship will operate: (A) preferred measurement area near Høyanger, (B) extended measurement area in case of insufficient measurement conditions in area (A); (lower part) typical course plot in area (A) from the 2005 sea trial in order to illustrate the planned research.*

## Area C and D

The hydroacoustic drifting and stationary experiment performed in Sognefjord within the first part of the research cruise will be continued will under different environmental conditions in area C and D in the second part (29.06.-03.07.2018). Depending on the weather condition the measurements will be either performed inside the fjord areas of area C and D or in the respective neighboring coastal waters. All measurement stations will be within the national sea water of Norway.



*Fig. 2: Geographical area in which ship will operate in the second part of the research cruise (29.06.-03.07.2018): (C) Bjornafjord and neighboring coastal waters, (D) Boknafjord and neighboring coastal waters.*