

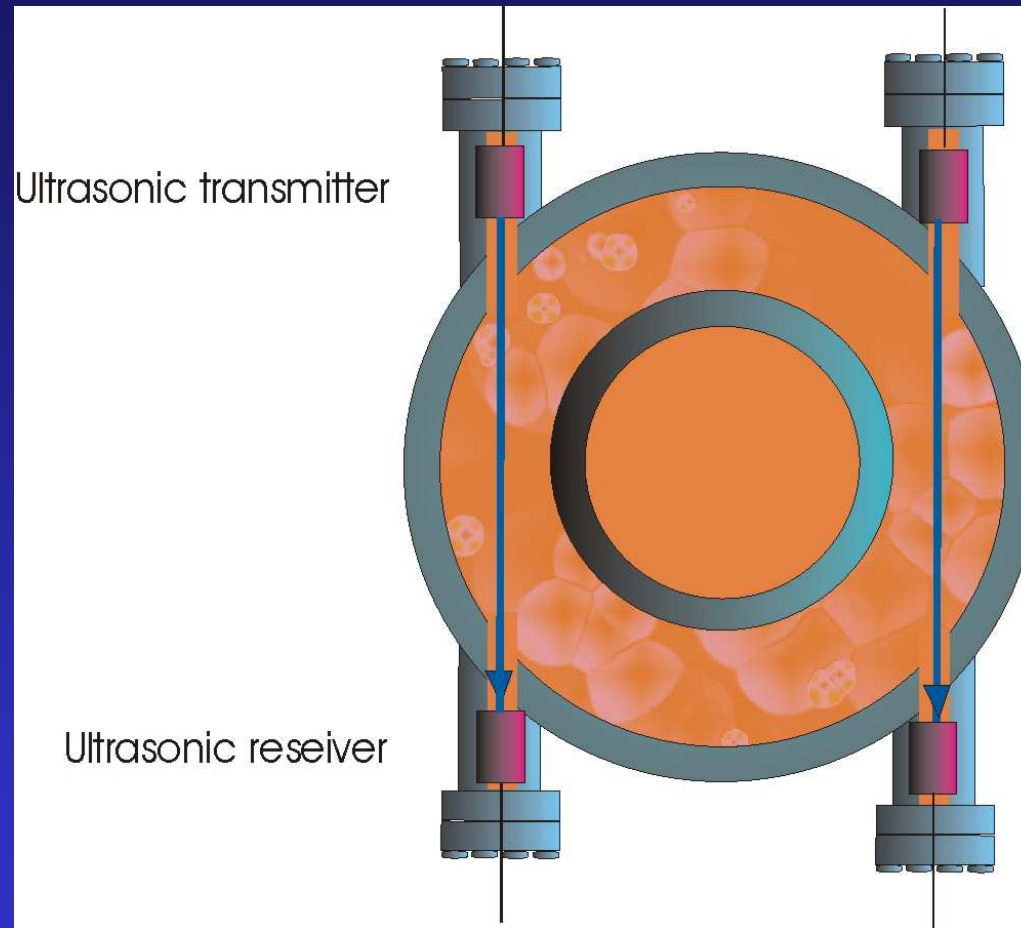
Early Gas Kick Detection with ultrasound

(IBJ deep sea gas kick detector)

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Germany

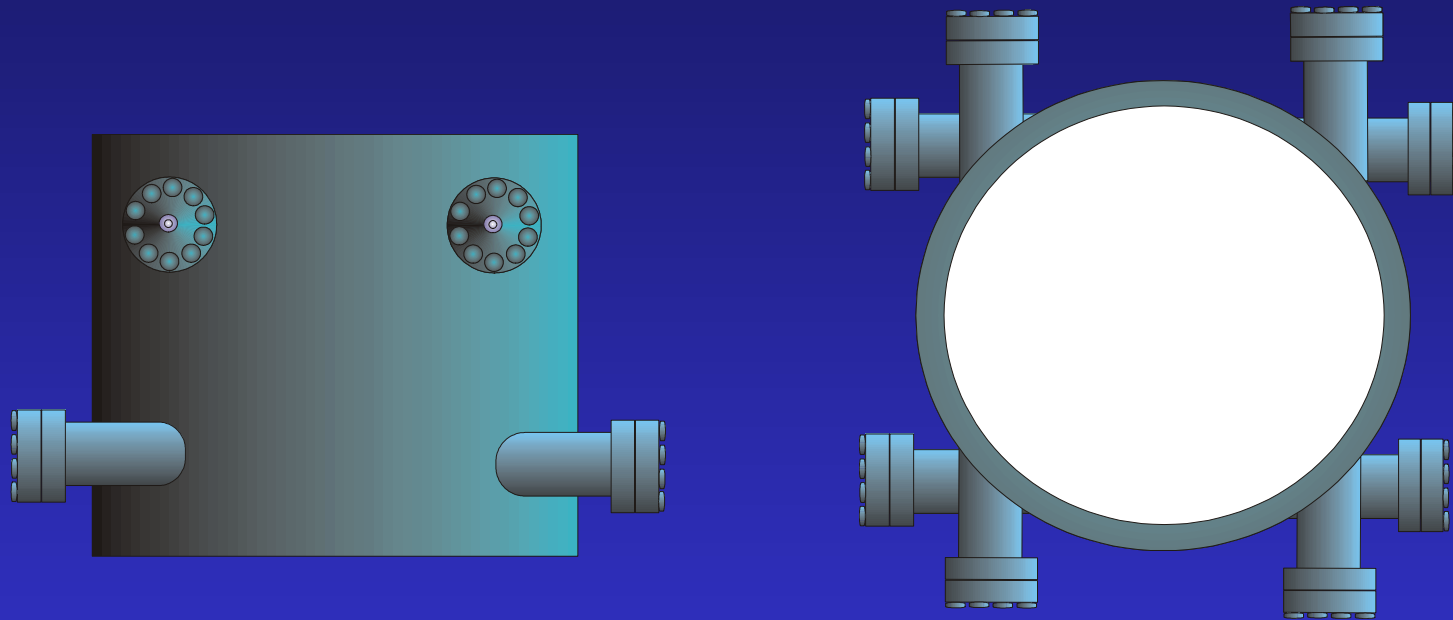
fmj@ibj-technology.com
www.ibj-technology.com

Gas Kick measurement of marine riser



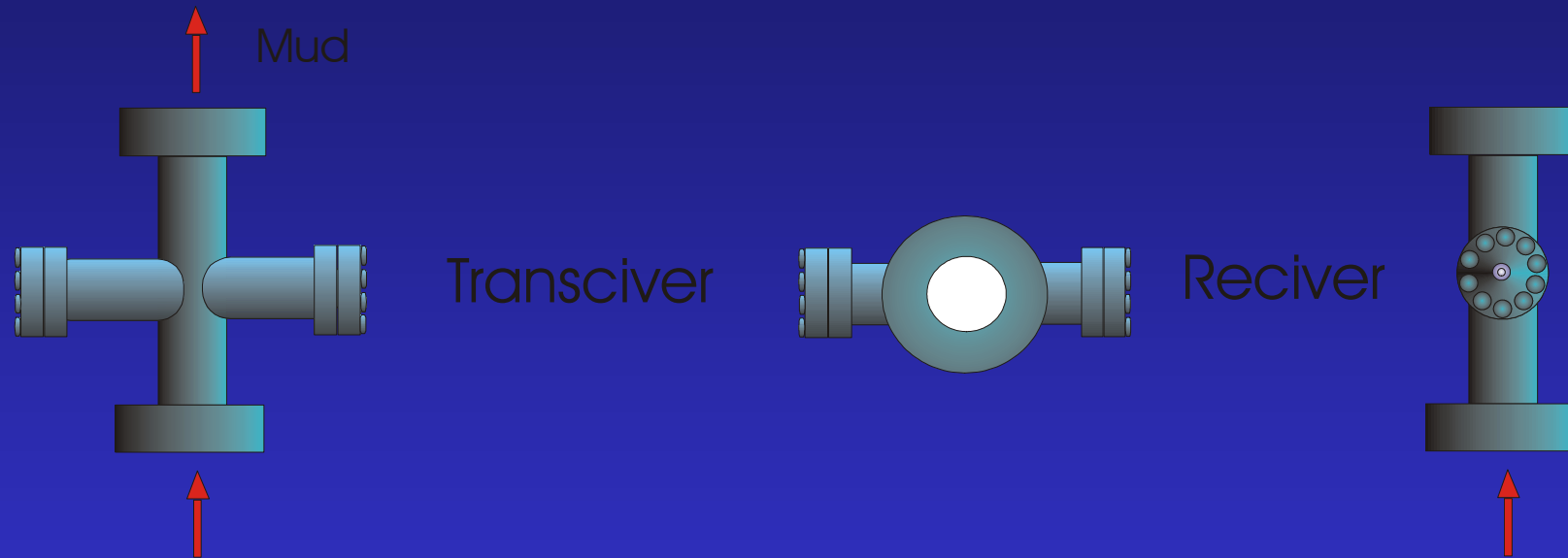
Sound path without reflection on the drill pipe

Gas Kick measurement of marine riser



2 floors with sound paths turned 90 °

Gas Kick measurement riserless



Sound path in the mud line

Gas Kick measurement for the deep sea

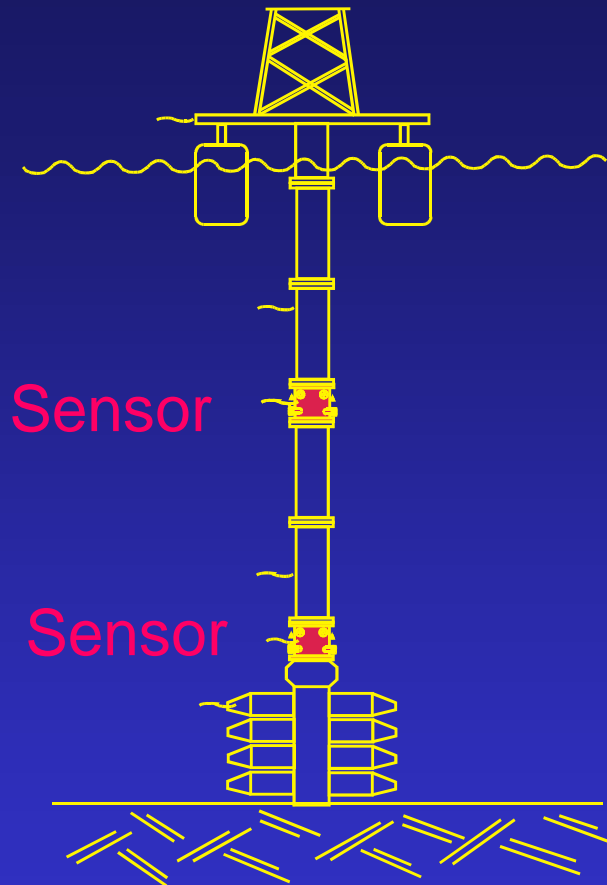


Fig. 5

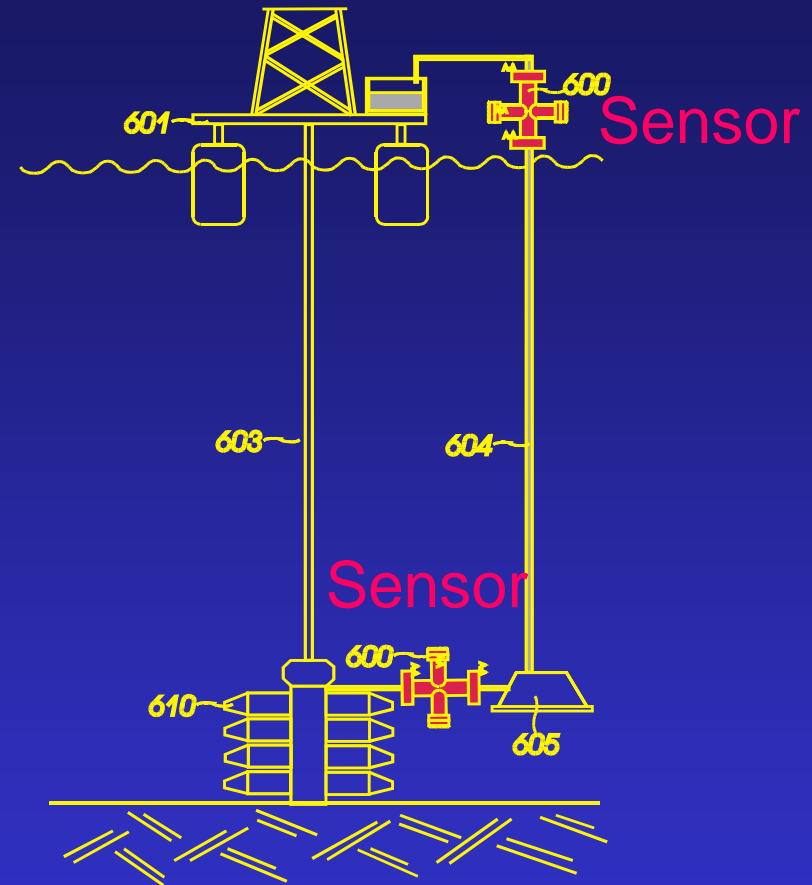


Fig. 6

Same sensors for all applications

Gas Kick measurement – physical effects

Hydrocarbons and
Liquified gases

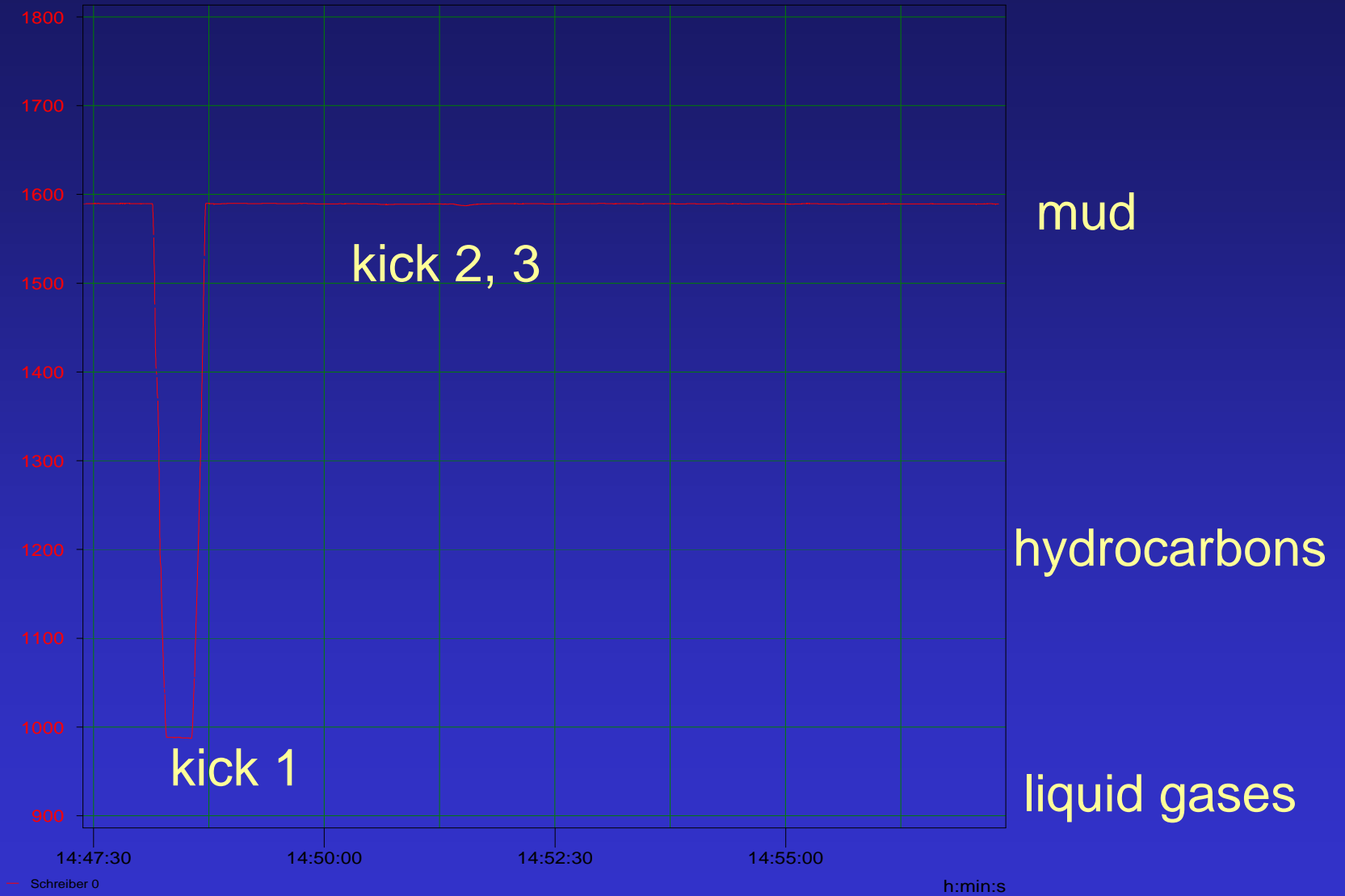
Sound speed is becomes smaller

Gas bubbles

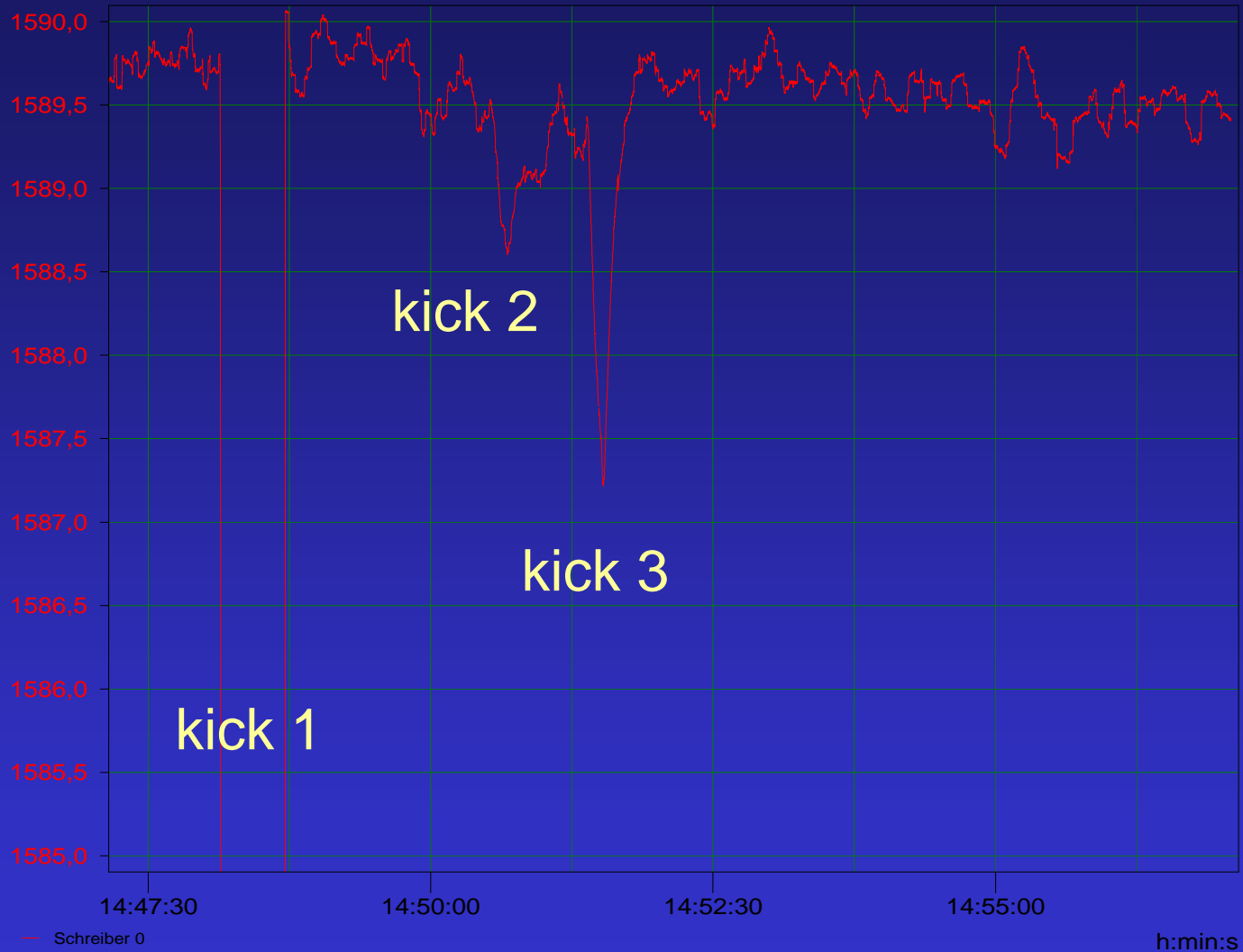
Amplitude becomes smaller

Sound speed can change
something

Measurement of sonic speed



Measurement of sonic speed



same situation - higher resolution

Gas bubbles measurement

