Supplementary data spreadsheet description

The spreadsheet contains data from 20 petroleum industry wells used for gas hydrate analysis in the Faroe-Shetland Basin.

Column A and B: Latitude and Longitude (Surface location)
These two columns show the location of the top of each well. Usually, there are multiple wells that deviate off from a single well in the Faroe-Shetland Basin, but we have evaluated only the wells with a unique surface location.

Column C: Well Name
This column shows the well name corresponding to each well.

Column D: Gas Mix, First Occurrence
This column shows if there is any gas chromatograph data in the well reports. We show the concentration of gases present in a well. C1: Methane, C2: Ethane, C3: Propane, nC4: n-Butane, iC4: iso-Butane, nC5: n-Pentane, iC5: iso-Pentane

Column E: Water Depth (mbsl)
Water depth is the vertical depth from mean sea level to the seafloor at a well location. In our dataset, we have listed all the water depths in meters below sea level (mbsl). The minimum water depth is 580 mbsl and the maximum water depth is 1567 mbsl.

Column F: Seafloor Temperature Model
The model used to estimate the seafloor temperature

Column G: Seafloor Temperature (C)
Seafloor temperature as described in Section 2 Data and Methods.

Column H: Geothermal Gradient (C/km)
The geothermal gradient is calculated using formation pressure tests in a well. If no formation pressure test is available, we use the bottom hole temperatures to calculate the geothermal gradient. For the wells where no in hole temperature data is available, we estimate the geothermal gradient by averaging the geothermal gradient from all the other wells.

Column I: BHSZ (mbsf)
BHSZ stands for the base of hydrate stability zone and the units are meters below sea floor. We compute the BHSZ using the water depth (Column F), seafloor temperature (Column G) and geothermal gradient (Column H) using CSMHyd software (Sloan & Koh, 2007).

Column J: Drill Floor Elevation from mean sea level (m)
Offshore petroleum industry well logs are measured from the drill floor or rotary table (RT) on the drilling vessel. The RT is usually 20 to 40 meters above the mean sea level.

Column K: BHSZ (mTVDRT)
BHSZ stands for the base of hydrate stability zone and the units are measured in meters true vertical depth below rotary table (mTVDRT).

Column L: Well Deviation
The petroleum industry wells can be vertical or deviated. If a well deviating below the BHSZ, we label it as 'vertical in HSZ' and if the well is deviated within the HSZ, we note the maximum deviation angle that it reaches within the HSZ.

Column M: Available Logs in HSZ
This columns shows the available well logs within the HSZ. In general, gamma ray and resistivity logs are available but sometimes bulk density and compressional velocity logs are also available within the HSZ.

Column N: Background Resistivity
We either calculate or estimate the background resistivity for the wells. If a bulk density log is available within the HSZ, we calculate density porosity and use it to calculate the background resistivity. When a bulk density log is not available, we estimate the background resistivity from the available resistivity log (usually P40H or A40L) by identifying the intervals that are water saturated.

Column O: Gas Hydrate Category
We describe the category of hydrate in a well using criteria from Majumdar et al., (2017) and also shown in Table 1 in the manuscript. In our dataset, there is 1 B Category well, 4 C Category wells and 14 D Category wells.

Column P: Gas Hydrate Intervals
This column lists the gas hydrate intervals in the wells. If there is no gas hydrate in a well, we mark "N/A".