

Recomputing of Bo

Used the formulas in the STARS manual (App. D.18) for Bo, with the oil compressibility as computed in an earlier blogg:

First Bo at bubble point pressure:

$$B_o(p_{bp}) = \exp(-C_o(p_{bp} - p_0)) = e^{-1E-7 \cdot 179} = 0.998212$$

Then Bo-variation with p:

$B_o(p) = B_o(p_{bp})\{1 - C_o(p - p_{bp})\}$, which gives the following table:

p (kPa)	Bo
100	1.0
18000	0.998212
20000	0.998012
24000	0.997613
28000	0.997214
32000	0.996815
36000	0.996415
40000	0.996016
50000	0.995018

As we see, significantly smaller Bo and variation of Bo than in our initial attempt.

This table will be used in the next generation ECLIPSE – IMEX – STARS models.