

Assignment 4 (alone or pairs)

Mar 3, 2020

Due: Mar 31

Consider the case of ice-structure impact where an iceberg strikes a floating spar platform on a flat side (normal and centered) in calm water (no waves) at an impact velocity at 1 m/s. The iceberg is 1 million tonnes and the local ice edge is spherical with a radius of 20 meters.

- Assuming ice crushing average pressure is $p = 4 A^{-0.1}$ (pressure in MPa, Area A in m²) estimate the max impact force and max contact area using Popov analytical approach.
- Solve the problem numerically in excel and show the time history of force. How far has the Platform moved at max force?

