

Concept and design of preventive structural mechanisms against scouring process around monopiles

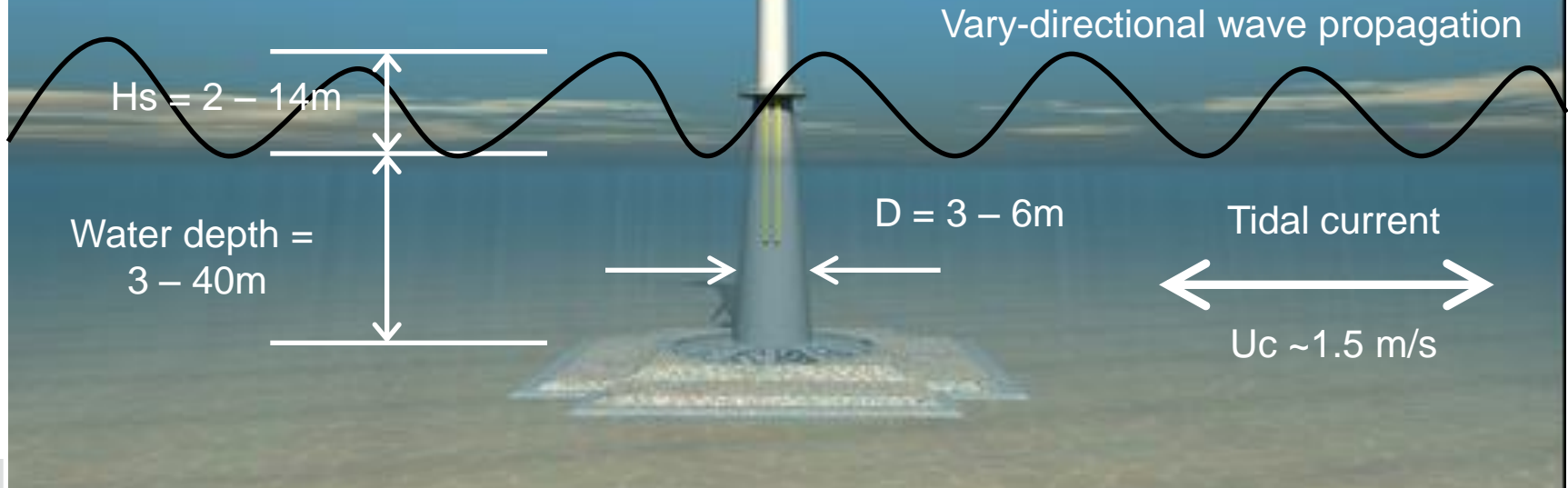
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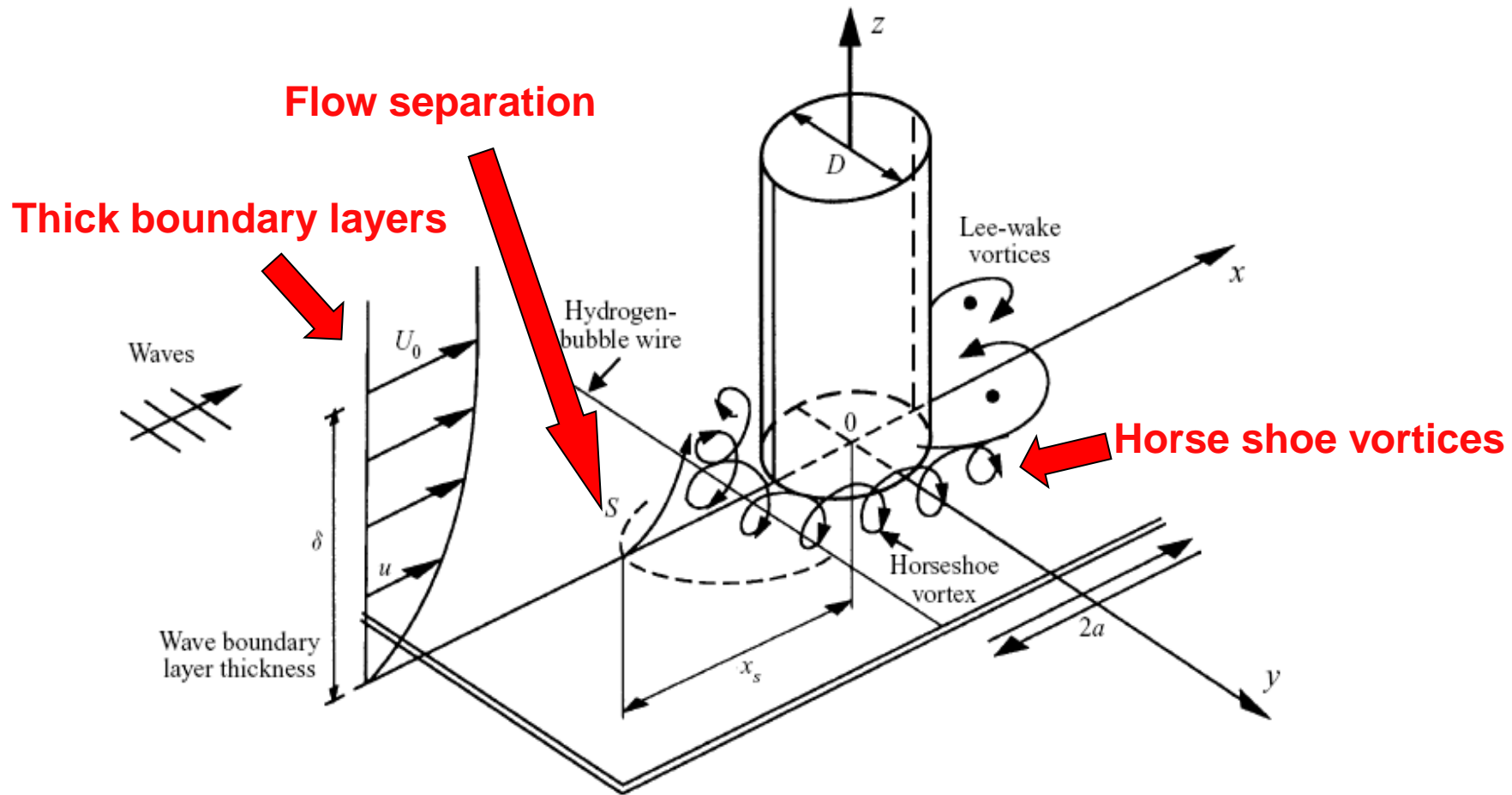
$$Re = U_c \cdot D / \nu = 4.5e6 - 9e6$$



High turbulence around
the pier



Main Hydraulic effects of scouring



Scouring at a bridge piers

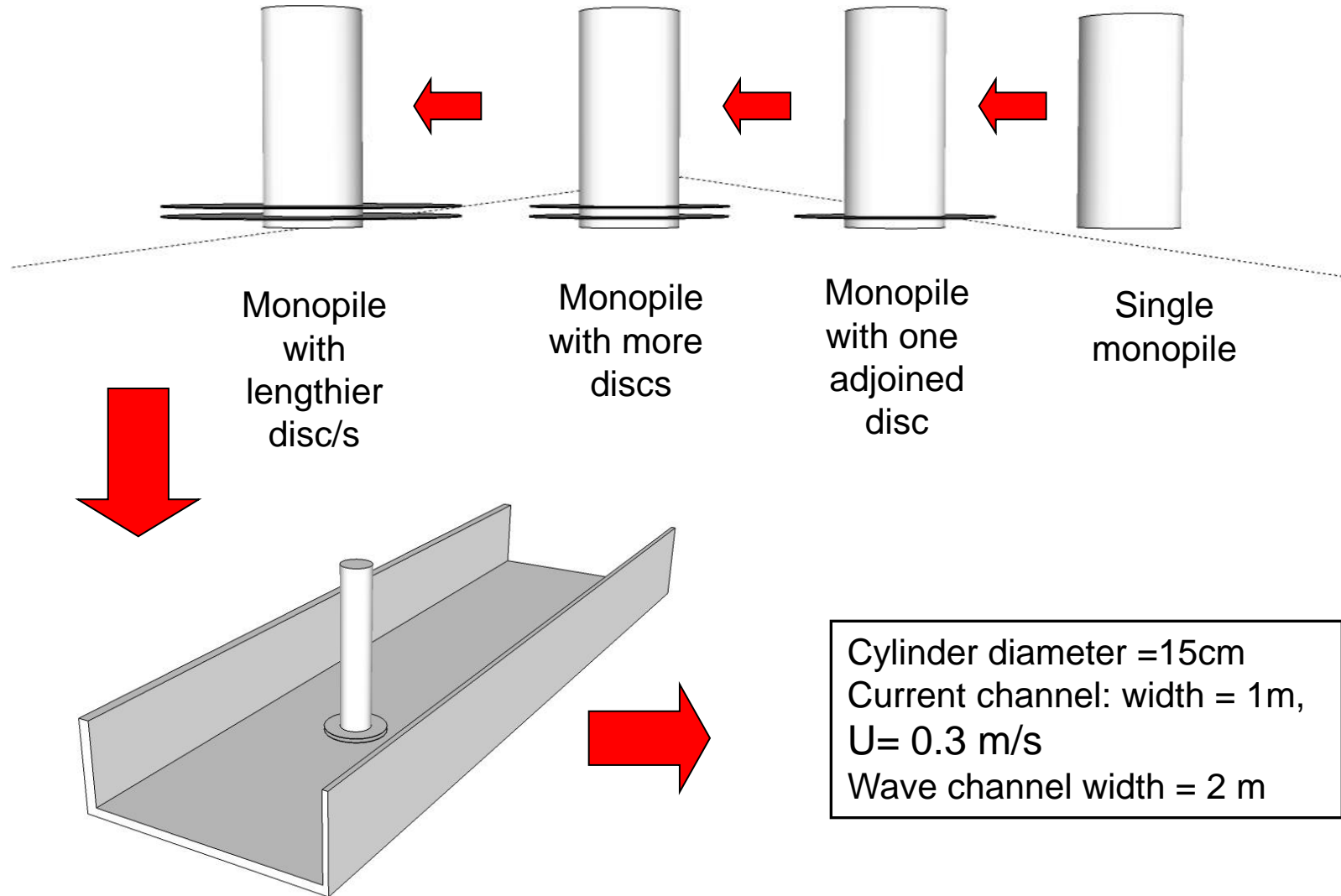


Damaging and costly !!!!!

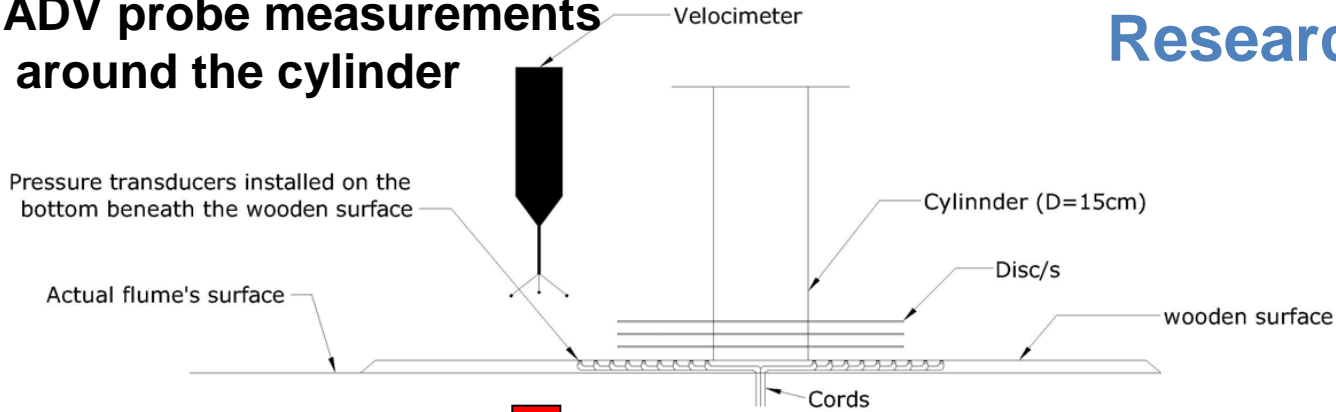
What are the prevention or protection alternatives??

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Adjoining circular disc/s around monopiles

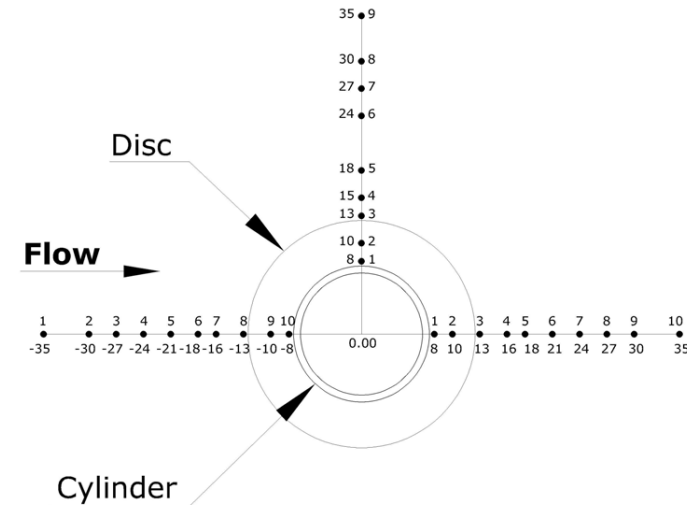
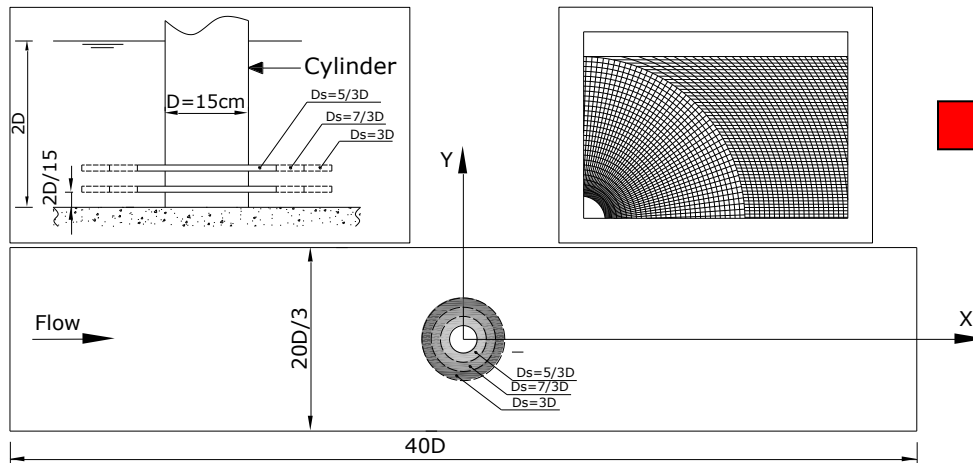


ADV probe measurements around the cylinder



Research Methodology

Numerical modeling



**Comparisons with physical
And numerical model on similar
Cross sections**

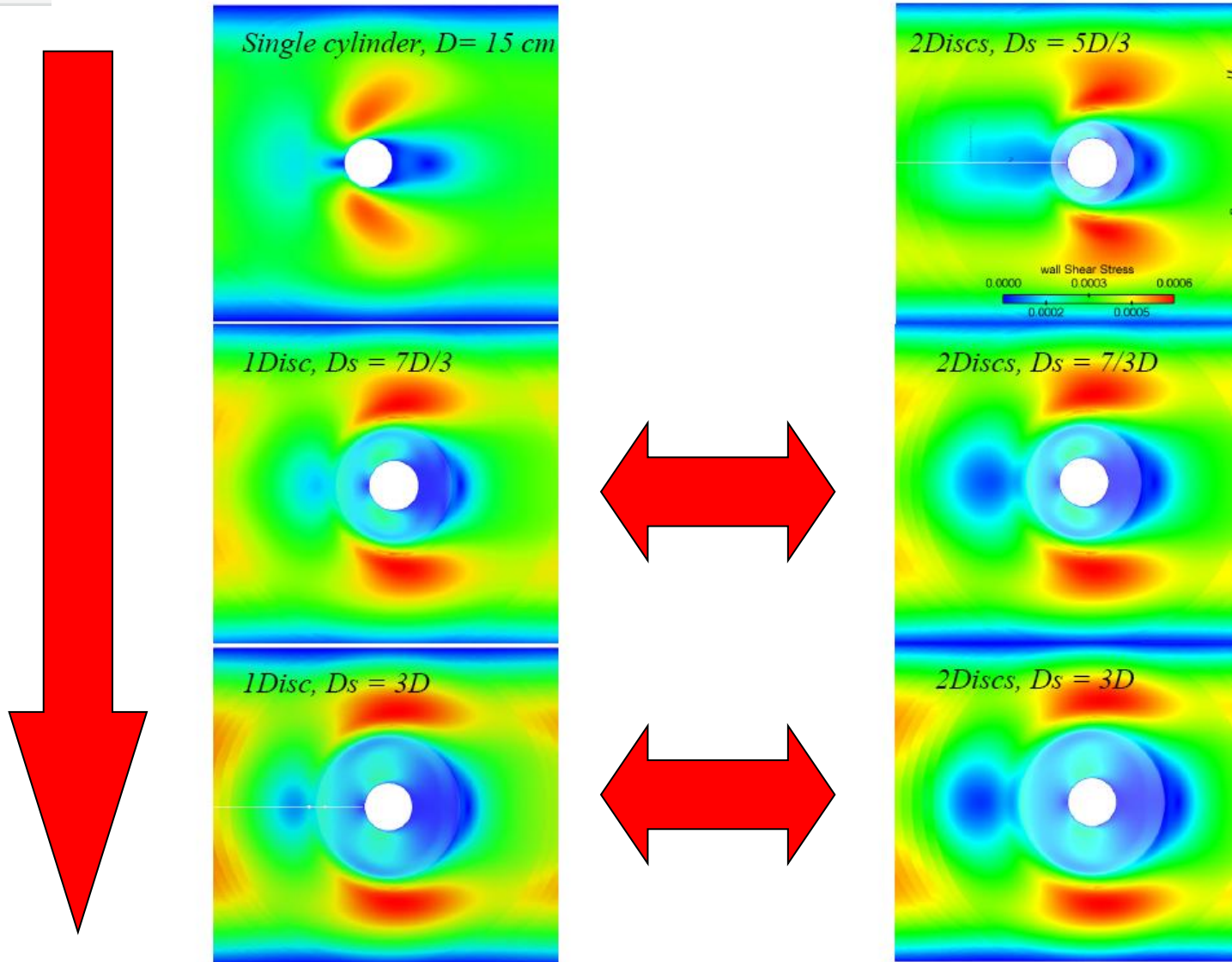


Fig. 2: Bottom shear stress around monopile with and without adjoined disc/s

Outlooks

- Employing Particle Image Velocimetry (PIV) method for further experiments
- Doing the experiments on the sediment bed models
- Trying out other adjoining mechanisms
- Standardization of the mechanism/s by indicating an index factor



Thank you for your attention 😊