

# PREVis questionnaire

There are 4 individual scales in PREVis, each measuring a particular dimension of perceived readability.

## Understand scale

obvious	It is <b>obvious</b> for me how to read this visualization <ul style="list-style-type: none"><li>• can you distinguish the different hydrodynamic attributes ?</li><li>• can you distinguish between ocean- and terrestrial elements ?</li><li>• can you geographically locate the area ?</li></ul>
represent	I can easily understand <b>how the data is represented</b> in this visualization <ul style="list-style-type: none"><li>• can you tell which attribute is represented by which symbol(s) or colour map (i.e. visual channel) ?</li><li>• can you identify the baseline (i.e. 0-point) of the attribute from the symbol(s) or colour map ?</li></ul>
understand	I can <b>easily understand</b> this visualization => expected insight <u>just from the visuals</u> (→ how many can you <b>easily</b> identify ?): <ul style="list-style-type: none"><li>• the water at the northern coastline of island flows towards from the coastline</li><li>• the water at the southern coastline of island flows away from the coastline</li><li>• the ocean around the island has a turbulent, non-laminar flow, meaning: the flow direction varies visibly &amp; has no easily-visible general flow direction</li><li>• there are 3 counter-clockwise turning eddy-gyres north of the island</li><li>• in the Irish Sea, between the mainland and the island, there are several smaller eddy gyres</li><li>• the winding of eddies south of the island varies – some turn clockwise, some turn counter-clockwise</li><li>• the eddies are areas with 0 m/s velocity at the center, and a divergence of 0 m/s at its boundary</li><li>• flow direction, divergence and eddy-location are correlated</li><li>• the seawater temperature is higher towards the coast than in the (northerly) open ocean</li><li>• there is a deep ocean trench off the south-southeast center shoreline of the island</li></ul>

## Reading data scale

find	I can easily <b>find specific elements</b> in this visualization <ul style="list-style-type: none"><li>• can you locate areas of fast-/slow-flowing water ?</li><li>• can you locate areas of calm, nearly-steady waters ?</li><li>• can you locate ocean trenches- and ridges ?</li></ul>
identify	I can easily <b>identify relevant information</b> in this visualization <ul style="list-style-type: none"><li>• can you identify &amp; distinguish areas of fast-flowing water from areas with slow-flowing water ?</li><li>• can you identify &amp; distinguish areas of equal flow direction from areas with a different flow direction ?</li><li>• can you distinguish between warm and cold water areas ?</li><li>• can you distinguish between deep and shallow waters ?</li></ul>
information	I can easily <b>retrieve information</b> from this visualization <ul style="list-style-type: none"><li>• can you directly approximate the flow velocity (in [m/s]) in the visualization ?</li><li>• can you directly read- or approximate the seabed elevation (i.e. bathymetry; in [m]) from the visualization ?</li><li>• can you infer the ocean water temperature (in [°C]) from the visualization?</li></ul>

## Layout scale

messy	I <b>don't</b> find this visualization <b>messy</b> <ul style="list-style-type: none"><li>• can you focus on individual visual elements in the visualization ?</li><li>• can you distinguish <b>lines</b> from <b>points</b> ?</li><li>• can you see the background even in densely-sampled areas ?</li><li>• can you identify all separate colours, or do you get the impression that there are duplicate colours due to colour deficiencies ?</li></ul>
crowd	I <b>don't</b> find this visualization <b>crowded</b> <ul style="list-style-type: none"><li>• do you <i>perceive</i> a lot of occlusions in the visualization ?</li><li>• do you perceive the visualization to be <i>nervous</i> ?</li></ul>
distract	I <b>don't</b> find <b>distracting parts</b> in this visualization <ul style="list-style-type: none"><li>• are there graphical elements that have nothing to do with the data, the scale or the orientation ?</li><li>• If the visualization uses saturation/brightness and transparency: are there discrepancies between the overlay, the data scale and the background colour ?</li></ul>

## Reading features scale

visible	I <i>perceive</i> data features (for example, a minimum, or an outlier, or a trend) to be <b>visible</b> in this visualization (i.e. they are <b>visibly existent</b> )
see	I can <b>see</b> data features (for example, a minimum, or an outlier, or a trend) <b>clearly</b> in this visualization (i.e. they are <b>distinct</b> from there surrounding)