Physical and Chemical Speciation of Iron in the Polar Oceans

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Propositions

Belongings to the thesis

“Physical and Chemical Speciation of Iron in the Polar Oceans”

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1. The ratio of the ligand concentration over the Fe concentration represents the relative saturation state of the Fe-binding ligands and proved to be a useful tool to describe the complexation of Fe in seawater. This parameter allows comparison between stations, and between ocean basins (This thesis).

2. Most of the free ligand sites present in the dissolved fraction are in fact in the smaller fraction (<1000 kDa) (This thesis).

3. The central deep Arctic Ocean acts as a major sink for Fe (This thesis, Chapter 6).

4. Organic ligands play a crucial role in enhancing the stock of Fe for phytoplankton blooms by solubilizing the natural fertilization inputs from the glaciers (This thesis, Chapter 7).

5. Ligands, source distance, and scavenging are the three main factors controlling the fate of Fe in the water column (This thesis, synthesis).

6. Real science is a known ignorance (Montaigne), but doubting about everything or believing in everything are two convenient answers that exempt us to think (Henri Poincaré).

7. Writing is like cooking: content, time and originality make the best recipe. A ‘broodje-kroket’ must be rejected.