**Chapter 6 Questions for FYS 178 Fall 2020**

What was Vilhelm’s and the Norwegian government’s primary goal for the summer of 1918?

What three factors made weather forecasting for West Norway and Trøndelag particularly difficult?

Name the specific weather feature in the wind field that Vilhelm intended to focus on when making his operational weather forecasts during the summer of 1918.

A significant barrier to successful operational forecasting in the summer of 1918 was the lack of observations from abroad due to the wartime black out. What existing resource in Norway became Vilhelm’s principal means for expanding the number of weather observations?

How many new weather stations had Vilhelm set up in West Norway just before the start of the official summer forecasting effort?

In addition to the assistance from the navy, who else helped to further strengthen the observation network in West Norway by providing routine weather observations?

Norwegian naval weather observers stationed at exposed islands and reefs gave high quality wind observations for two reasons. Name one of the two reasons.

Vilhelm’s son, Jacob, derived an expression for the movement (propagation) of lines of convergence as a function of what?

Jacob Bjerknes noted two characteristic rain patterns associated with lines of convergence. Describe the two patterns.

As Jacob reviewed weather observations from Scandinavian climatological stations, he found a relationship between lines of convergence and cyclones. What two different types of air currents seemed to be found in each cyclone?

During the summer weather forecasting experiment, Jacob increasingly suspected that a cyclone actually possessed how many lines of convergence? Where in the cyclone did Jacob believe that the lines of convergence met?

Contrary to the thinking at the time, the summer forecasting experiment revealed that the thermal structure of a cyclone was symmetrical or asymmetrical (choose one)?

Jacob and Vilhelm used the tangent to the “steering line” to predict the motion of cyclones and their lines of convergence during the weather forecast experiment during the summer of 1918. Did this forecast method lower the percentage of erroneous forecasts?

What common weather feature that we hear about on today’s TV weather broadcasts was ***not*** actually a concept that arose from Vilhelm’s and Jacob’s summer 1918 work?

Jacob’s idealized cyclone model was modified slightly from his summer picture (Figure 5) to the version included in his now-classic paper “On the Structure of Moving Cyclones” (Figure 6). Name the modification that was made to the lines of flow in his cyclone model.

Jacob later abandoned two concepts that played a prominent role in the October 1918 paper describing his idealized cyclone model. Name one of the two.

The linked lines of convergence and divergence in Jacob’s cyclone model were taken from the conceptual cyclone model developed by Vilhelm’s group in 1911. From what Austrian meteorologist’s work did Jacob borrow to insert the concept of a boundary surface separating the two types of air in his cyclone model?

Jacob’s initial rain and cloud pattern of his cyclone model (Figure 10) was a slight modification of the patterns found in whose classic textbook description of weather in a cyclone?

Upon closer inspection of the available weather observations, Jacob removed the rain and cloud pattern covering which sector of his idealized cyclone model (Figure 11)?

What was the overall challenge facing Vilhelm’s group in defining a conceptual model of a mid-latitude cyclone given that most of their observations were taken at the surface and analysed in two dimensions?

What industry did Vilhelm and virtually all his colleagues anticipate would exert an enormous impact on meteorology after World War I had ended?