This diploma thesis contains an overview of the synoptic meteorology, from the so called Norwegian meteorological school and its interlacing with more modern concepts. It deals with air masses, atmospheric fronts and pressure systems. Further, the overview of latter conceptual models of atmospheric fronts is presented. It shows using of satellite and radar measurements in synoptical praxis, as well. The first chapter introduces formation of air masses and apportionment of air masses. It notices transformation of air masses, too. The second chapter deals with basic clasification of atmospheric fronts. Fronts are shown with help of satelite and radar images. Creation and development of pressure systems follows.