Low-temperature properties of the dilute dipolar magnet LiHo$_x$Y$_{1-x}$F$_4$ ANDERS BILTMO, PATRIK HENELIUS, KTH, Stockholm — The phase diagram of the rare-earth compound LiHo$_x$Y$_{1-x}$F$_4$ is considered as a function of dilution. At low temperatures the material is a good realization of a dipolar Ising magnet. The net magnetization vanishes at high dilution and the glassy behavior that ensues has several interesting features, including a proposed anti-glass phase and anomalous peaks in the specific heat. In this talk we will show results obtained with Monte Carlo techniques and compare them with recent experimental data.