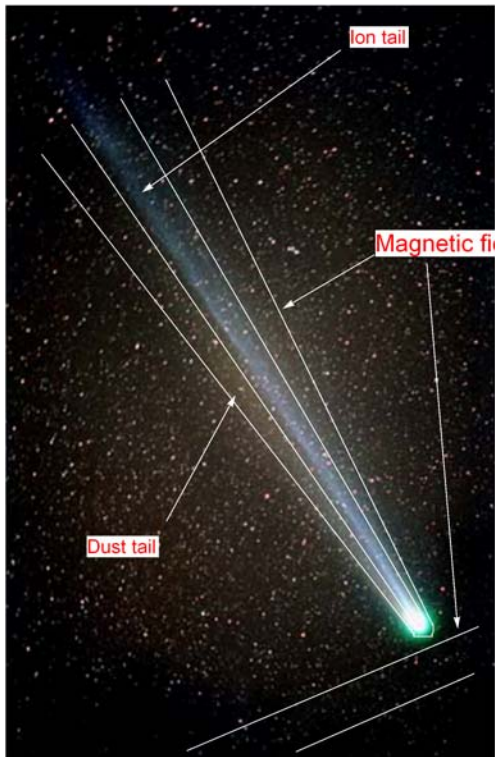


■ **Homework 5**  
—25 Feb 2011

■ **Problem 1**

- (a) The ion tail is straight and blue. The dust tail is redder. In this picture they are almost coincident.
- (b) The magnetic field in front of the comet is straight. The ions near the nucleus of the comet cannot move into the field, because the motion would be perpendicular to the field. The field must wrap around the nucleus.
- (c) The ions from the comet move in a straight away from the nucleus. The ions in the solar wind move in a helix along the field lines. The large-scale motion is parallel to the field lines. At small scales, the motion is a helix.



■ **Problem 2**

Earth gathered material that condenses at the high temperature of the material in the vicinity. Both silicon and iron form compounds that do condense at high temperatures. (See figures of 11 Feb.) Jupiter gathered material that condenses at temperatures above 100C. It would therefore also collect the silicon and iron compounds. Therefore the ratio of the amount of iron to silicon should be the same for Earth and Jupiter.