

Honors Seminar 292 — cheat sheet for 10/23/2019 — Andrew Baker

Trumbo et al. (2019)

You should read all of the article except the “Materials and Methods” section. Key questions:

1. What evidence do the authors present in favor of sodium chloride (i.e., salt) on the surface of Europa, and where on the surface do they see it?
2. Why do the authors argue that the salt on Europa’s surface comes from the moon’s interior?
3. How do the authors interpret the lack of certain (“M center”) features in their observations of Europa that are seen in some laboratory spectra?
4. What conclusions (if any) are the authors able to draw about the properties of Europa’s ocean?

Key terms:

- **anhydrous** = description of a substance that contains no water
- **color center** = changes in a substance’s crystal structure that are caused by irradiation and manifest as changes in color
- **leading hemisphere** = the side of Europa’s surface that faces in the direction of its orbital motion
- **nm** = nanometers
- **radiolysis** = destruction of a molecule due to ionizing radiation
- **trailing hemisphere** = the side of Europa’s surface that faces away from the direction of its orbital motion (and which is subject to bombardment by incoming material from Io)