

Are Comets the source of our water?

Literature research into D/H ratio

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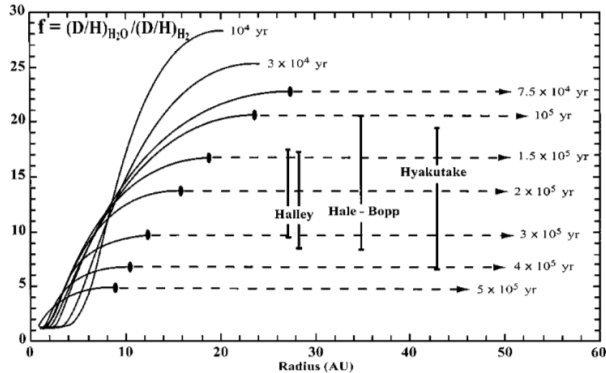
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D/H ratio of asteroids and comets

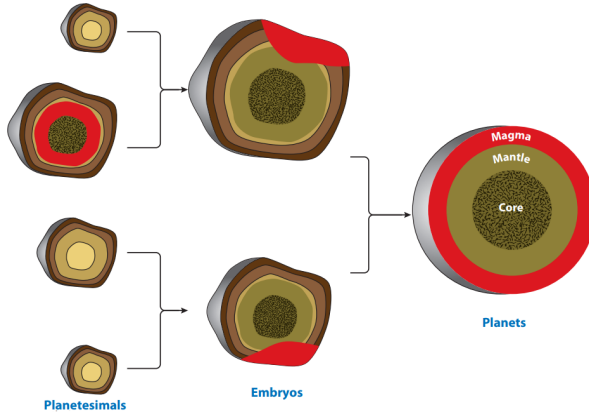
Depends on:

- position of creation
 - Asteroid Belt
 - Kuiper Belt
 - Oort Cloud
- for comets: behind the snow line
- time of creation

Timescale creation of comets



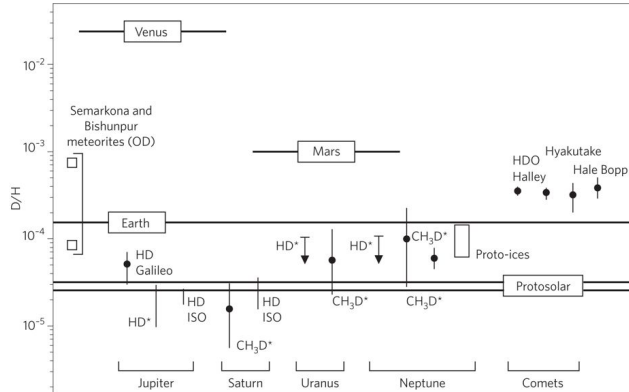
Collisions protoplanets



(source: L. T. Elkins-Tanton, 2012)

- ① Volatile elements absorption onto grains due to:
 - ① Physisorption
 - ② Chemisorption
- ② Volatile elements are stored inside the planetesimals.
- ③ Volatile elements are released in the atmosphere due to magma ponds.

Current D/H ratio of terrestrial planets



(source: A. Ingersoll, 2017)

Extra-Planetary Objects

Comets

- High Water Content
- Sufficient Quantities
- High D/H Ratio

Asteroids

- Closer D/H Ratio
- Possibly Insufficient Quantities
- Questions Raised About Primordial Belt

Effects of Bombardment

- Atmosphere
- Plate Tectonics
- Lava Oceans
- Nuclear Winter
- Elevated Atmospheric Water Vapor

Questions

Thanks for listening Questions?

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