Cloudy with a Chance of Stars

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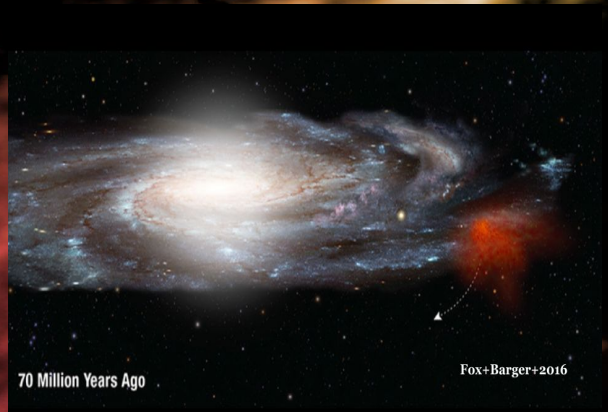
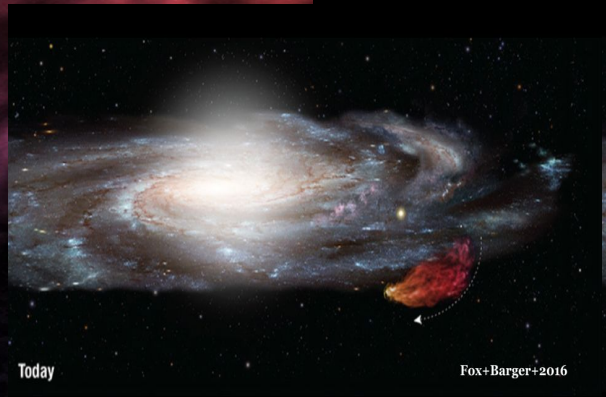
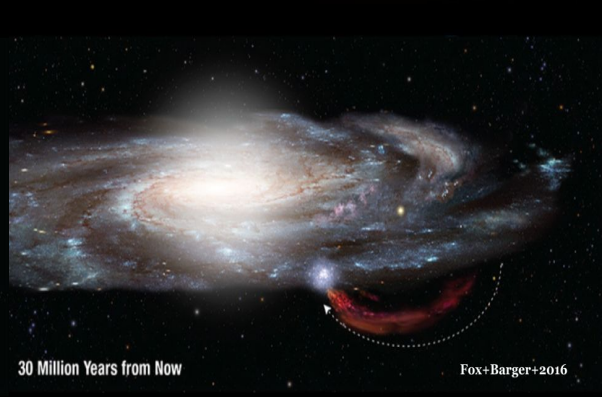
Introduction

- Gas clouds are important for star formation
  - Gas reservoir to make more stars
- Galactic Fountain
- Galactic halo







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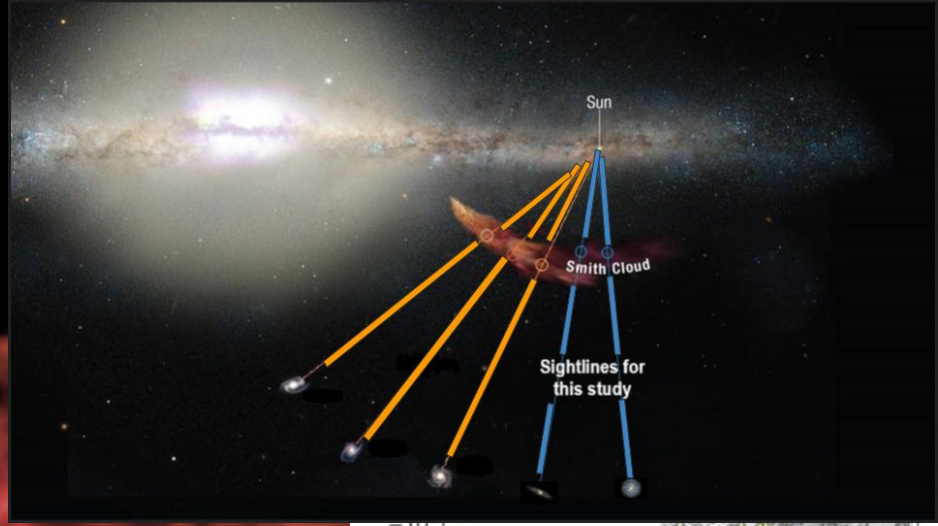
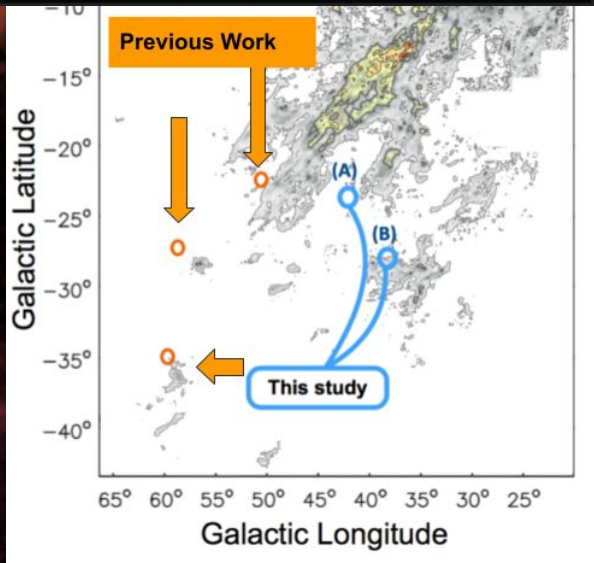
Sightlines

- Hubble Space Telescope
- Two sightlines: (A) and (B)
- Smith Cloud comes from Milky Way





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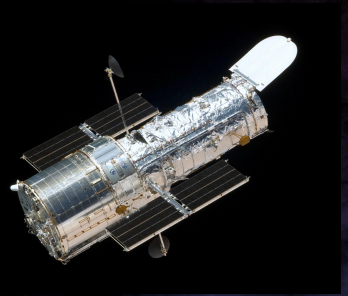
What are we looking for? (Data from Hubble)

- Width of the absorption line
- Area above the absorption line
- The center velocity
- **Fit**
- **Si^+, 119.0 nm**
- **Milky Way component**
- **Smith Cloud component**



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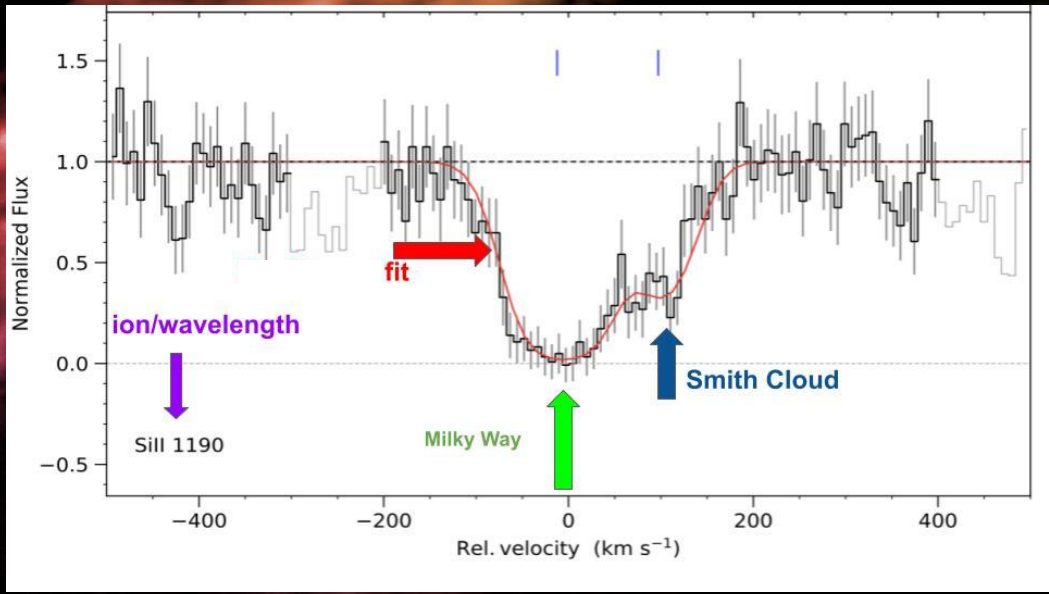

Eg: Si^+ at 119.0 nm

Goals/Future Work

- What are the ionization conditions in…
  - The fragments of neutral hydrogen of the Smith Cloud
  - Trailing wake
- Future work
  - Simulations
  - Dynamics of the cloud

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The Smith Cloud is a gas cloud heading toward the Milky Way galaxy at a high rate of speed. We believe this cloud originated and was ejected from our own Milky Way galaxy. Now, it's falling back toward us. On its path back home, it has to fight its way through 1 million degree Celsius gas. The headwind the cloud experiences, travelling through this super hot gas, is stripping off parts of the cloud. We are studying two parts of this cloud to figure out how it will enter our Galaxy to supply it with more star-making stuff.

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