Observations of Atmospheric Escape

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What does atmospheric escape from extrasolar planets look like?

- Escaping particles overflowing the Roche lobe will still be bound to the parent star.
- Clouds of particles will disperse along the orbit, based on the velocities and directions of escape processes.
- These clouds will be affected by the photoionization, electron impact ionization, charge exchange, radiation pressure, stellar winds.
- Sodium’s unusual properties make it an excellent tracer for other species.
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A Call to Action!

• If your escape model works well at $10^{23}-10^{26}$/sec, can it handle $10^{28}-10^{29}$/sec? (Loss of exosphere in ~2hrs)
• Ample observational constraints on escape paths!
Another Call to Action!

- If this “textbook explanation” is wrong, where did a few bars of CO$_2$ go, or did they never exist?
- MAVEN invites you to a community science meeting in Fall ‘12
Better hurry! We launch in 2013, arrive in late 2014