



# What It's Like to Land on Mars



## Astro 301. Goals for today's lecture:

- Comments on critiquing
- Discussion: how can we effectively communicate with the public about astronomy/physics?
- More discussion of how to tell a story
- 1st critiquing assignment: Professional Press Releases

Astronomers have many opportunities to communicate with the public, and these opportunities should not be wasted.

 Rubin Museum of Art

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The Museum Visit Exhibitions Programs & Events Education Collection Support RMA



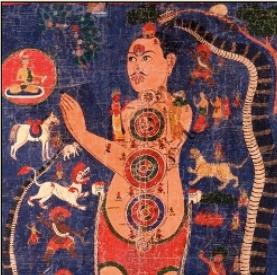
The Museum > Mission & History

**Visions of the Cosmos**

December 11, 2009 - May 10, 2010

*Visions of the Cosmos* juxtaposes Eastern and Western conceptions of the universe through approximately 70 works, including sculptures, paintings, illuminated manuscripts, rare books and prints from American and European collections, and photographs of the galaxies taken largely by the Hubble Space Telescope. *Visions of the Cosmos* marks the first opportunity for visitors to compare European works with the museum's Himalayan art collection.

[Find out more](#)



[Click to view slideshow.](#)

## 2nd assignment: *Elements of Style* (Strunk & White)

- **Focus of this assignment:**
  - Good grammar and effective writing style!
  - That is, take the lessons of the book to heart and apply them
  - Accordingly, this paper should be carefully proofed
- This is a one-shot assignment, i.e., only one draft with no opportunity to make revisions

### **High-stakes (graded) assignment.**

Next assignment:  
Statement for Graduate School  
Application

**Length is up to you, but typically these are 1-3 pages long**

When applying to graduate school at UMass, a “personal statement” must be submitted with the application that addresses the following:

1. the reasons why you want to do graduate work in this particular field,
2. your specific interests in this field,
3. any special skills or experiences you have acquired, and
4. your career plans.

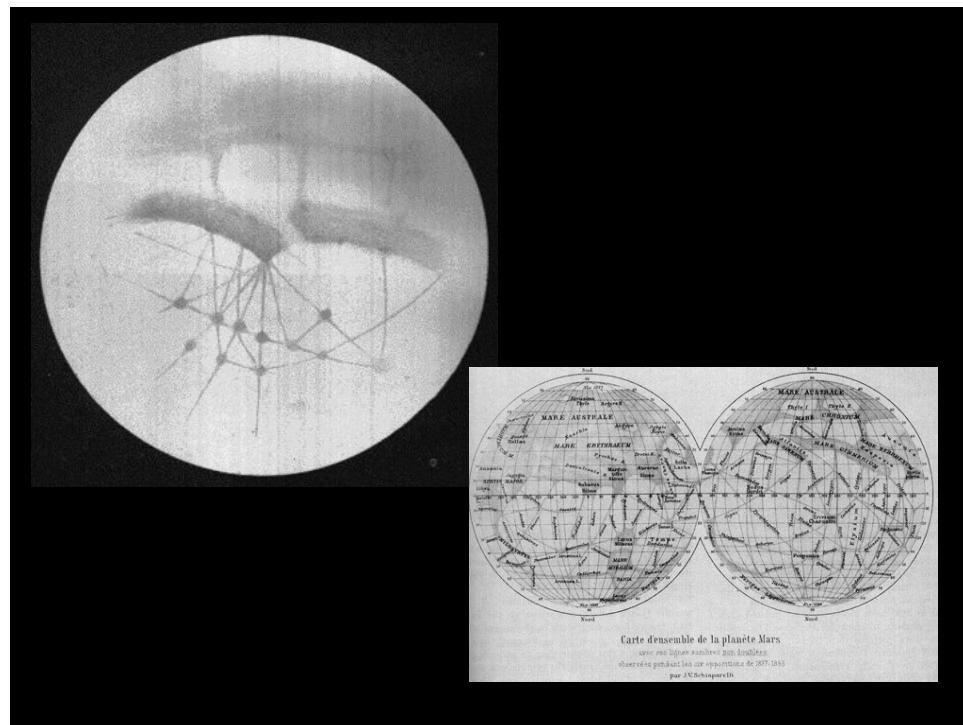
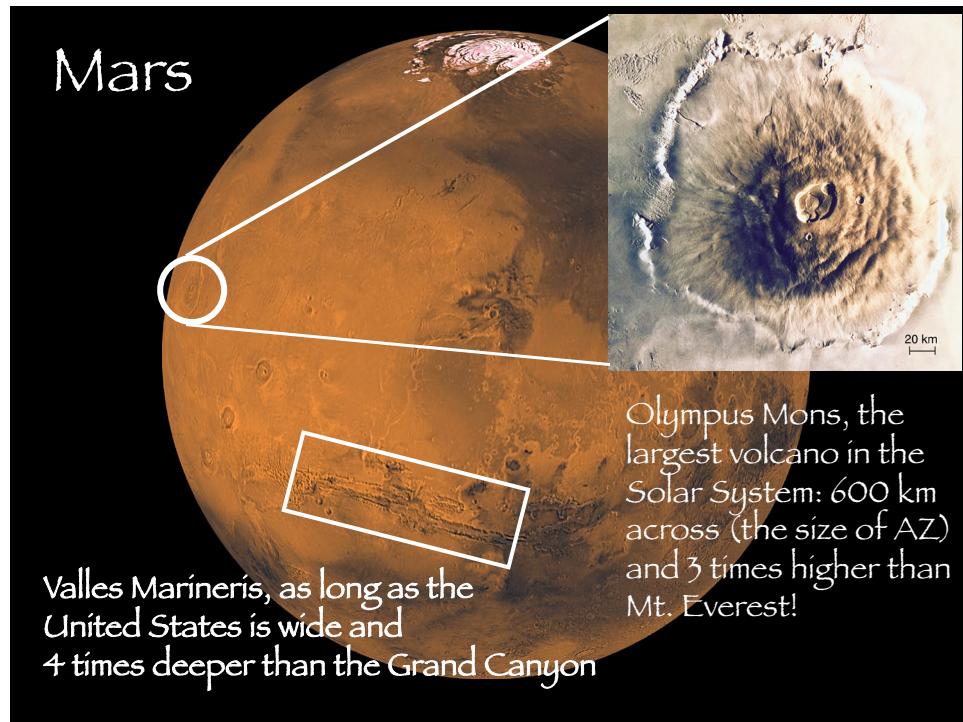
**1st draft due Thursday, February 2. This will be a traditionally graded assignment, and a 1st and 2nd draft will be required.**

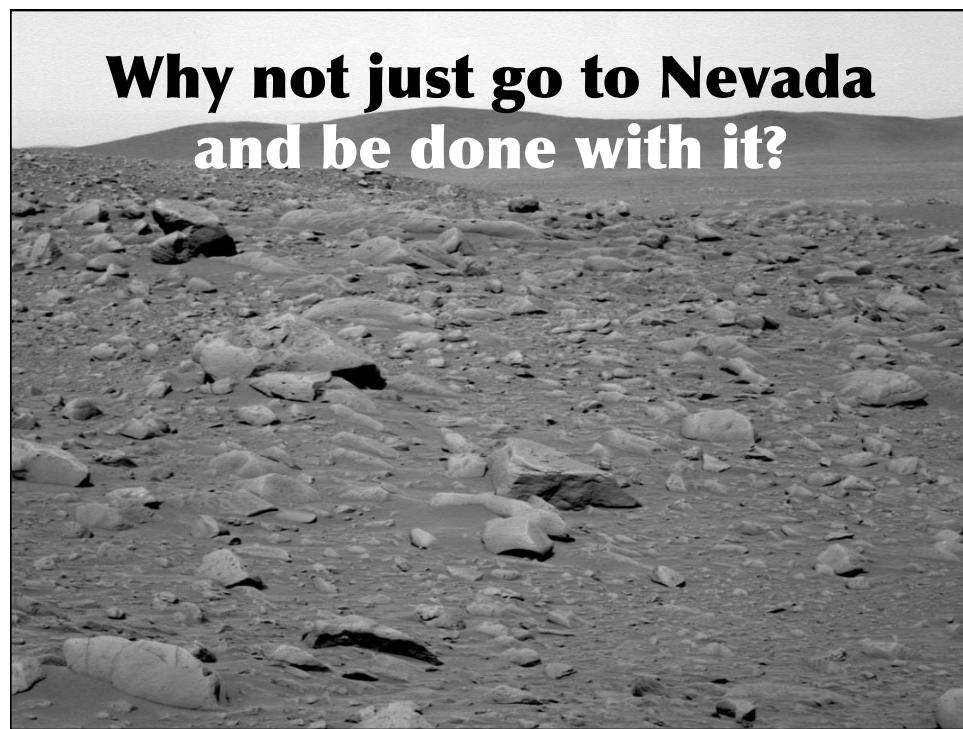
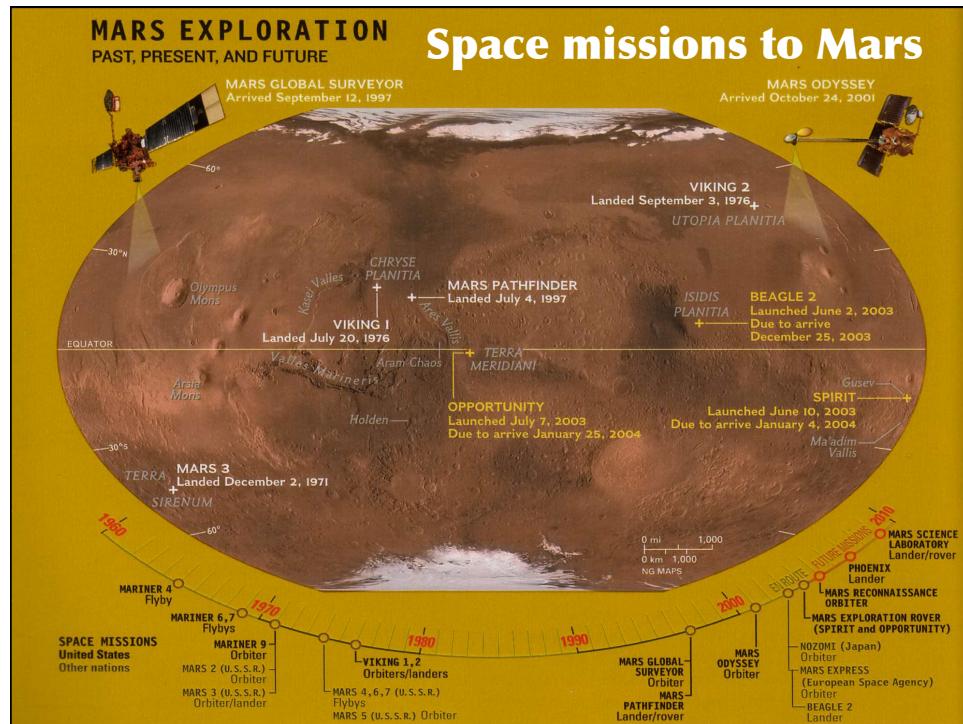
## Critiquing a paper/document: goals and techniques

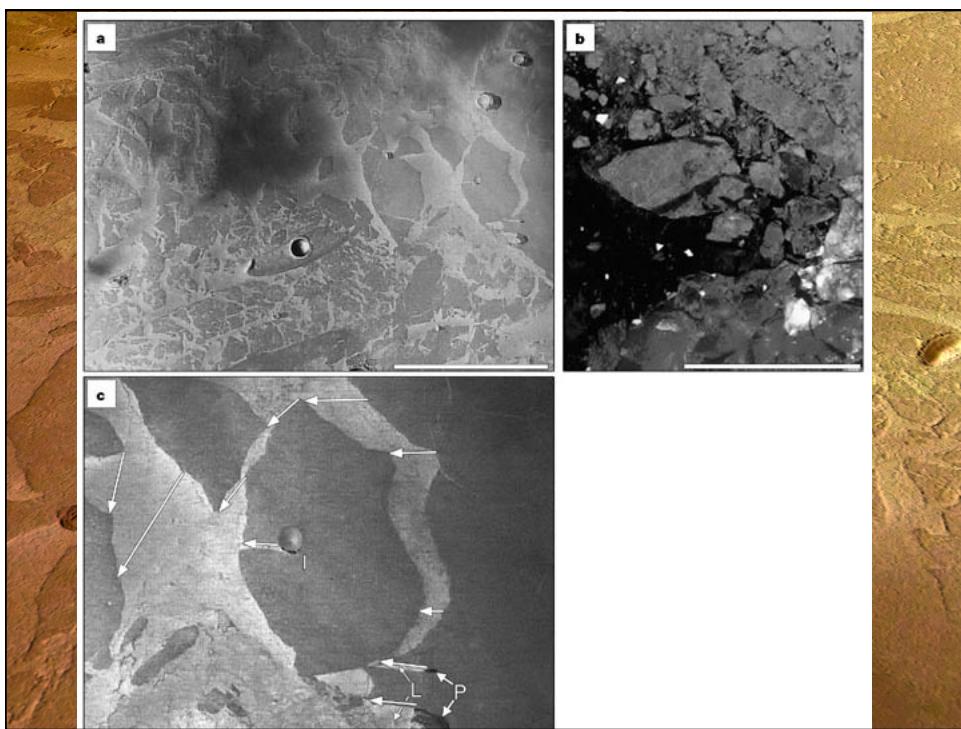
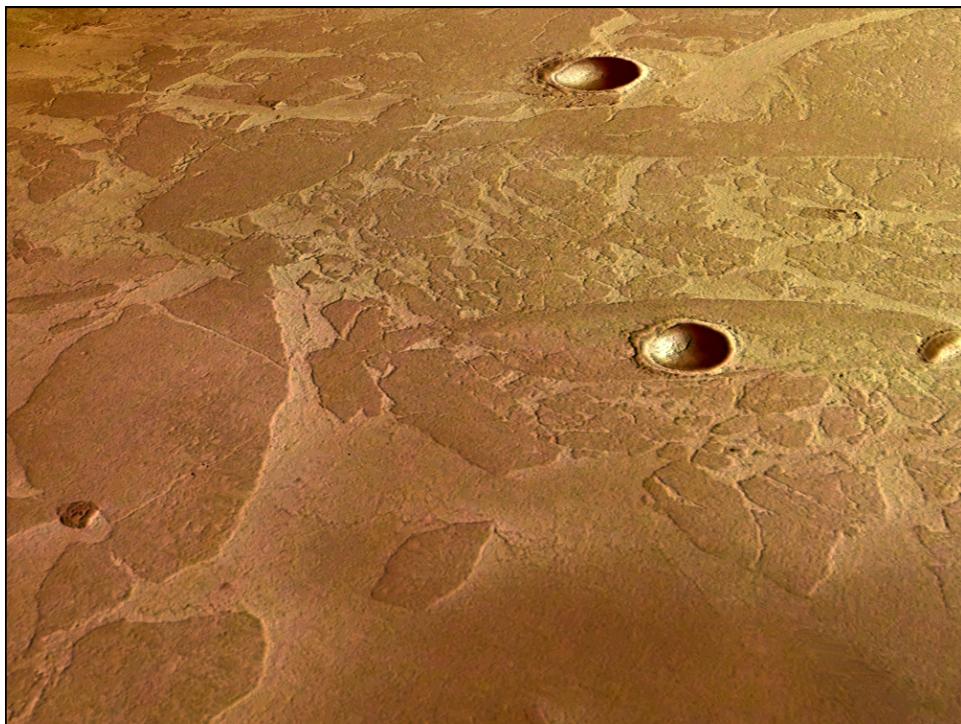
- **Overriding goal:** help the *writer* improve the paper
- **Additional purpose:** help the *reader* to recognize and understand effective/ineffective writing techniques
- However, since you may be a coauthor on the paper, by helping the writer you'll be helping yourself...

## Critiquing a paper/document: goals and techniques

- **Three readings** technique (Sylvia Forman):
  - **1st reading:** skim, with focus on big picture. Is this a good, clear paper? Why?
  - **2nd reading:** start taking notes, but concentrate on major issues, i.e., parts of the paper that are particularly weak or strong
  - **3rd reading:** go ahead and fuss about details







**Letters to Nature**

*Nature* **434**, 352–356 (17 March 2005) | doi:10.1038/nature03379; Received 3 September 2004; Accepted 18 January 2005

**Evidence from the Mars Express High Resolution Stereo Camera for a frozen sea close to Mars' equator**

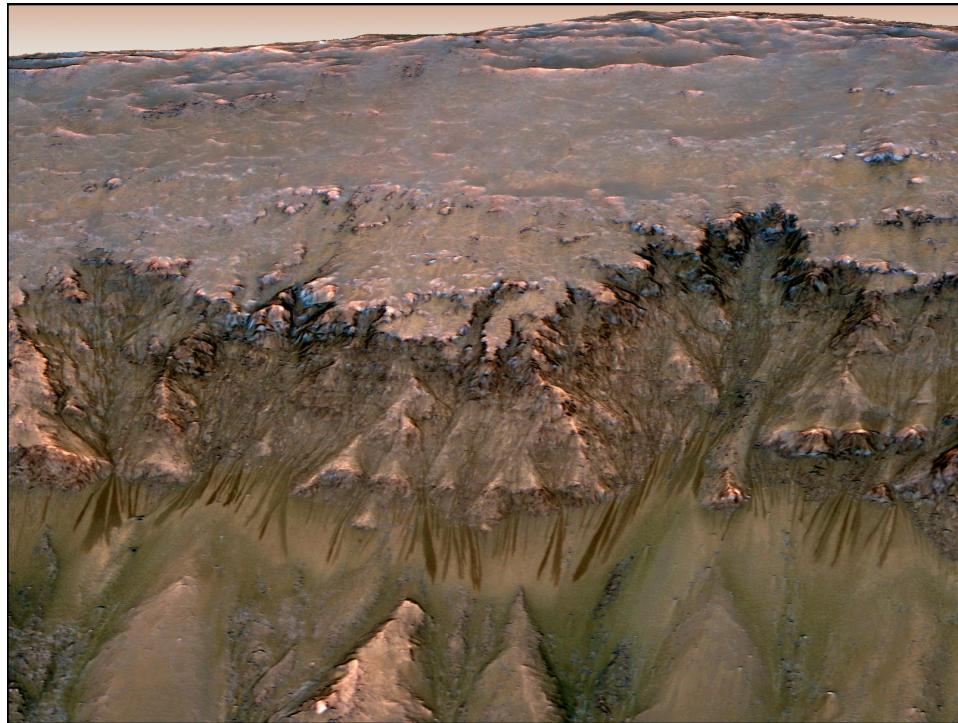
John B. Murray<sup>1</sup>, Jan-Peter Muller<sup>2</sup>, Gerhard Neukum<sup>3</sup>, Stephanie C. Werner<sup>2</sup>, Stephan van Gasselt<sup>3</sup>, Ernst Hauber<sup>4</sup>, Wojciech J. Markiewicz<sup>5</sup>, James W. Head, III<sup>6</sup>, Bernard H. Foing<sup>7</sup>, David Page<sup>1,8</sup>, Karl L. Mitchell<sup>9</sup>, Ganna Portyankina<sup>5</sup> & The HRSC Co-Investigator Team<sup>10</sup>

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 9. Environmental Science Department, Lancaster University, Bailrigg, Lancaster LA1 4YQ, UK  
 10. A list of all members of The HRSC Co-Investigator Team and their affiliations appears at the end of the paper

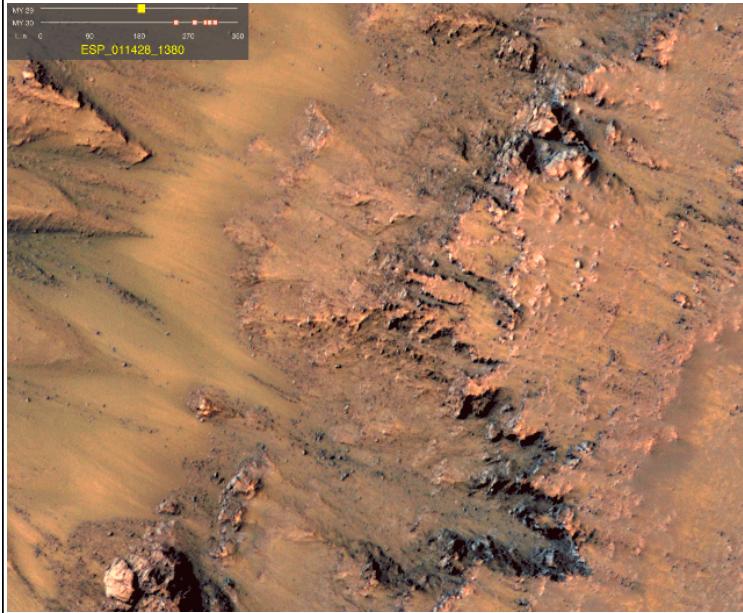
Correspondence to: John B. Murray<sup>1</sup>. Correspondence and requests for materials should be addressed to J.B.M. (Email: [J.B.Murray@open.ac.uk](mailto:J.B.Murray@open.ac.uk)).

**It is thought that the Cerberus Fossae fissures on Mars were the source of both lava and water floods<sup>1, 2, 3, 4</sup> two to ten million years ago<sup>1, 2, 5</sup>. Evidence for the resulting lava plains has been identified in eastern Elysium<sup>1, 2, 4, 6, 7, 8</sup>, but seas and lakes from these fissures and previous water flooding events were presumed to have evaporated and sublimed away<sup>9, 10, 11</sup>. Here we present High Resolution Stereo Camera images from the European Space Agency Mars Express spacecraft that indicate that such lakes may still exist. We infer that the evidence is consistent with a frozen body of water, with surface pack-ice, around 5° north latitude and 150° east longitude in southern Elysium. The frozen lake measures about 800 × 900 km in lateral extent and may be up to 45 metres deep—similar in size and depth to the North Sea. From crater counts, we determined its age to be 5 ± 2 million years old. If our interpretation is confirmed, this is a place that might preserve evidence of primitive life, if it has ever developed on Mars.**

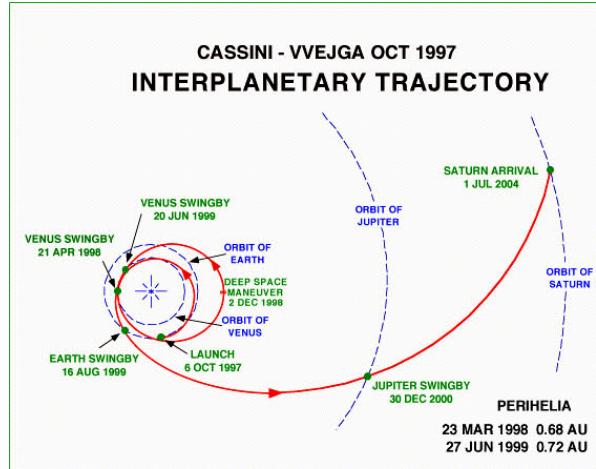
Extensive fields of large fractured plate-like features on a horizontal surface are visible near the south end of the High Resolution Stereo Camera (HRSC) imaging strip taken on 19

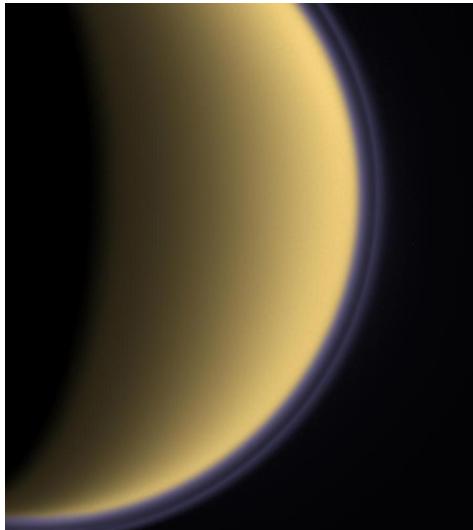
Water currently flowing on the surface of Mars?



Cassini: NASA mission to study Saturn and its moons



## Titan: the way we were?



- Of all the planets and moons in the Solar System, Titan has an atmosphere that is most similar to the Earth's atmosphere (mostly N<sub>2</sub> and hydrocarbons)
- It has been hypothesized that Earth was like Titan in its early days...

**What's hidden beneath the thick atmosphere?**

Above: optical image of Titan from the *Cassini* spacecraft

## Video Press Release No. 1

