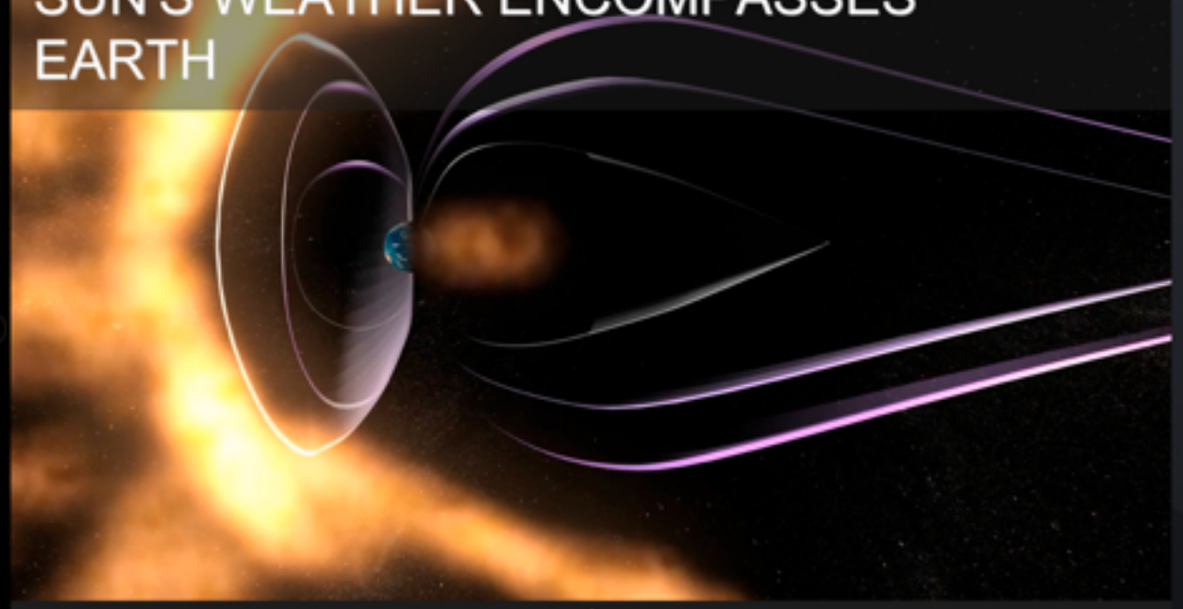
NASA Visualization Explorer

Neema Mostafavi, Media Specialist
Scientific Visualization Studio (SVS)

NASA Visualization Explorer

SUN'S WEATHER ENCOMPASSES EARTH

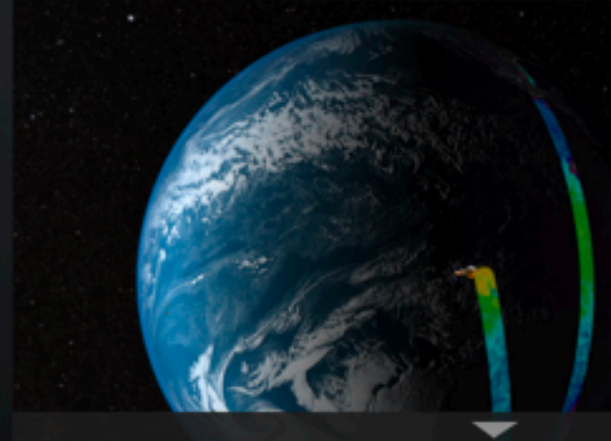


Watch what scientists have just recorded for the first time: explosive space weather from start to finish.

20

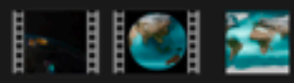
NASA Visualization Explorer

A PINCH OF SALT FROM SPACE



What does salinity have to do with ocean currents and climate change?

NASA gave the command last week to power on its newest Earth-observing satellite, Aquarius. It may seem a somewhat peculiar measurement to make, but Aquarius, which launched in June 2011, will measure salinity across all the oceans every week. The data will undoubtedly help answer some of our most pressing questions about climate change. Why measure ocean salinity? The density of ocean water is determined by salinity and water temperature. Density drives the pattern of deep ocean currents, and ocean currents drive global climate. In recent decades, scientists have seen ocean salinity shift in ways that only climate change seems able to explain. Until now, salinity data came from slow-moving ships and a network of floating sensors that could only provide a limited global picture. Satellite technology changes that: From 400 miles (644 km) above Earth Aquarius' hypersensitive microwave radiometer can detect differences in ocean



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Daily iPad App: NASA Visualization Explorer | TUAW - The Unofficial Apple Weblog

http://www.tuaw.com/2011/08/08/daily-ipad-app-nasa-visualization-explo

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NASA releases iPad app for science research

By: Don Reisinger

JULY 26, 2011 10:51 AM PDT

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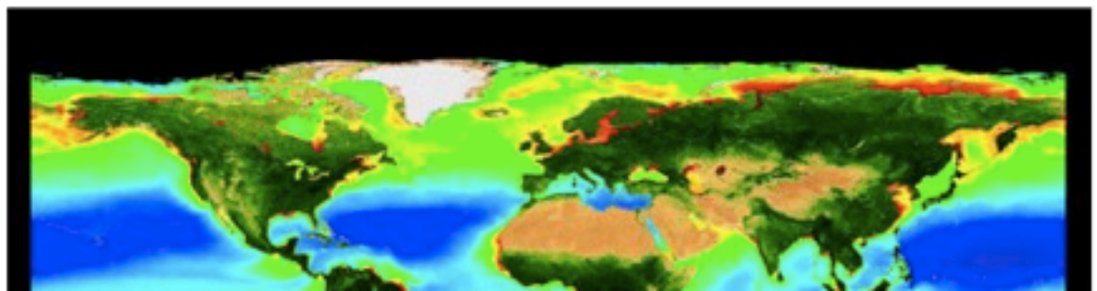

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2. **PlayItYourself 4 HD**
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   Game Center
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3. **Angry Birds HD Free**
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   Updated Jul 26, 2011
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4. **Mr Giggle HD Lite**
   Games
   Updated May 29, 2011
   Game Center
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5. **Doors of the Mind ...**
   Games
   Released Jul 21, 2011
   Game Center
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   Books
   Updated Jun 07, 2011
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7. **Mr Giggle 2 HD Lite**
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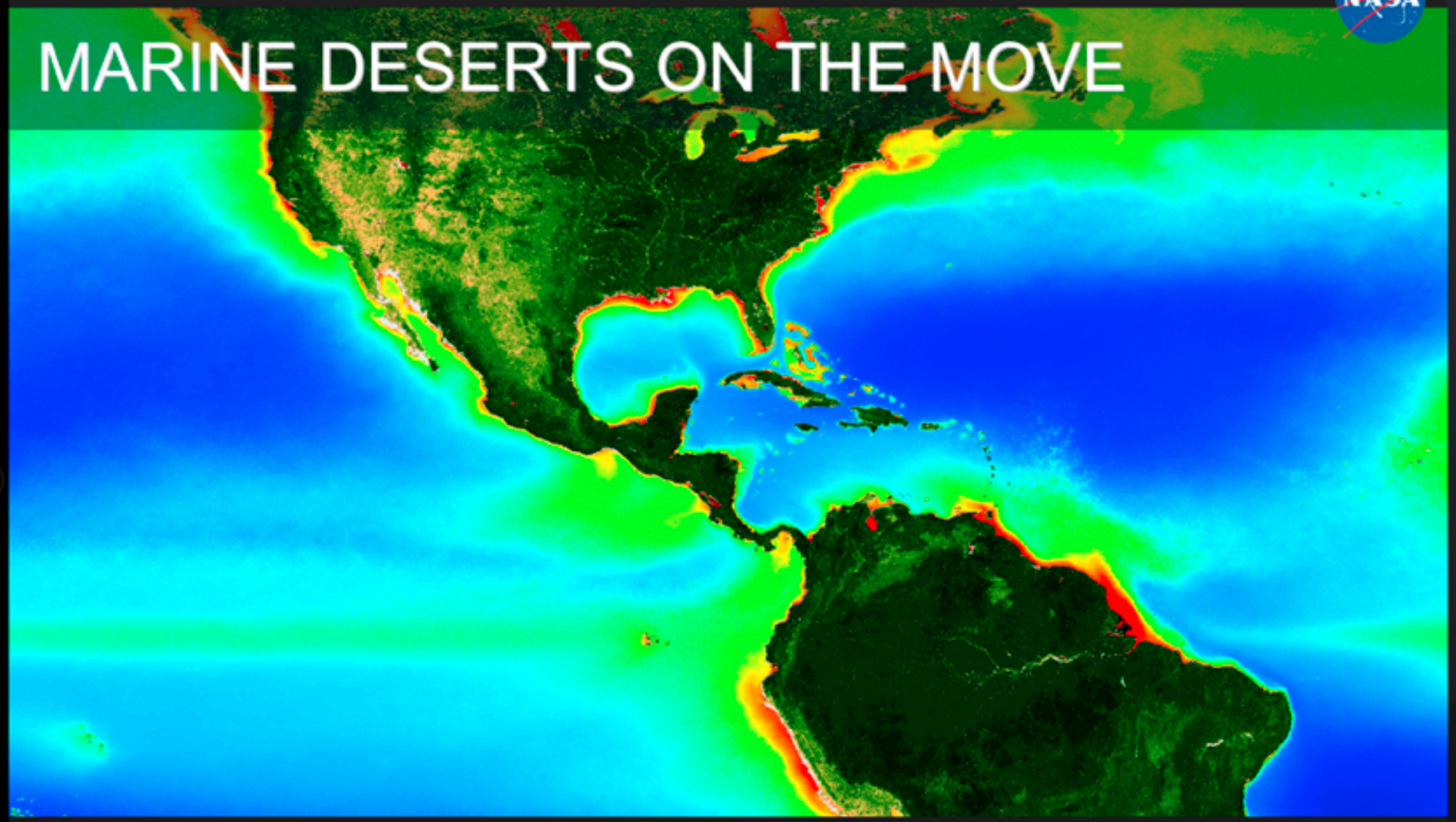
NASA Visualization Explorer

MARINE DESERTS ON THE MOVE



Satellite observations show where plants thrive--or struggle to survive--on land and sea.

NASA Visualization Explorer for the iPad – Home

http://svs.gsfc.nasa.gov/nasaviz/index.html

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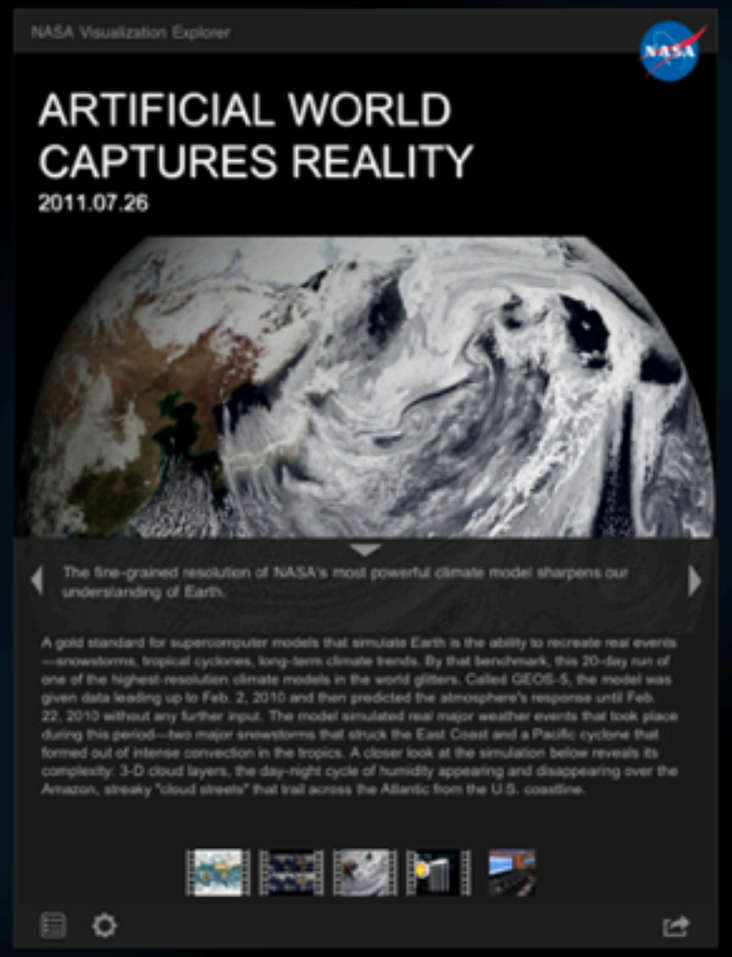
VISUALIZATION EXPLORER

NASA science: revealed.

This is the NASA Visualization Explorer, the coolest way to get stories about NASA's space-based Earth science research. Download it now and see a world of often intangible data brought to life in stunning and beautiful form. Only for the iPad.



version 1.0.2, iPad iOS 4.3+

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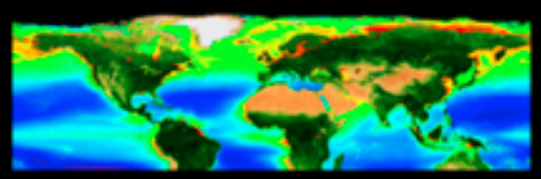
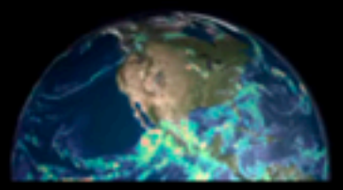
The NASA Visualization Explorer relies on computer images built from satellite data for most of its pictures.



Topics include climate change, aerosols, glaciers, hurricanes, volcanoes and wildfires; all things observed by NASA satellites.

One-of-a-kind content, some animated, some narrated and presented in concise and engaging video format.



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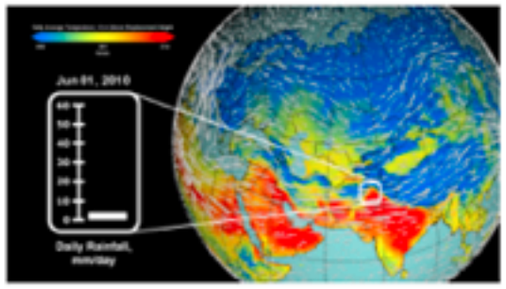
Welcome

The mission of the Scientific Visualization Studio is to facilitate scientific inquiry and outreach within NASA programs through visualization. To that end, the SVS works closely with scientists in the creation of visualization products, systems, and processes in order to promote a greater understanding of Earth and Space Science research activities at Goddard Space Flight Center and within the NASA research community.

All the visualizations created by the SVS (currently totalling over 3,900) are accessible to you through this Web site. More recent animations are provided as MPEG-4s, MPEG-2s, and MPEG-1s. Some animations are available in high definition as well as NTSC format. Where possible, the original digital images used to make these animations have been made accessible. Lastly, high and low resolution stills, created from the visualizations, are included, with previews for selective downloading.

Our Latest Visualization

Extreme Russian Fires and Pakistan Floods Linked Meteorologically



In the summer of 2010, months of record-breaking drought and temperatures culminated with a rash of fires that ravaged western Russia for weeks. Temperatures in Moscow soared to an average of 104?F (40?C) during late July and early August -- more than 18?F (10 ?C) above normal. Hundreds of fires...
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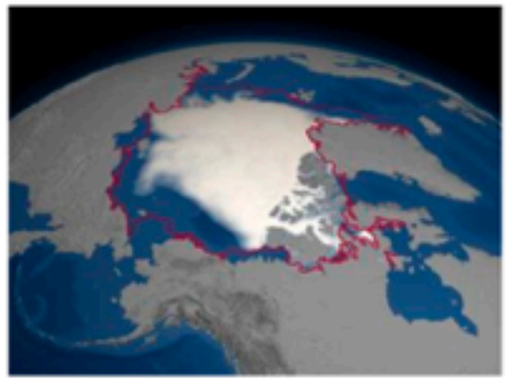
A Tour of the Cryosphere



A new HD version of this animation is available here.

Click here to go to the media download section.

The cryosphere consists of those parts of the Earth's surface where water is found in solid form, including areas of snow, sea ice, glaciers, permafrost, ice sheets, and icebergs. In...
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Development

- iOS Software Development Kit
  - Xcode
    - Interface Builder
- iOS Developer Account
- Objective-C

NasaVisExplorer – NasaVisExplorer.xcodeproj

NASA Viz › iOS Device

Build NASA Viz: **Succeeded** | Today at 9:20 AM

Run Stop Scheme Breakpoints Editor View Organizer

NasaVisExplorer
2 targets, iOS SDK 4.3

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TARGETS
NASA Viz
Internal Version

Info | Build Settings

Deployment Target

iOS Deployment Target 4.3

Configurations

Name | Based o
Debug | No Con
Release | No Con
Ad Hoc | No Con

Command-line builds use Release

Localizations

Language | Resourc
English | 1 File L

Identity

NASA Visualization Explorer

SUN'S WEATHER ENCOMPASSES EARTH

Watch what scientists have just recorded for the first time: explosive space weather from start to finish.

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http://developer.apple.com/devcenter/ios/index.action

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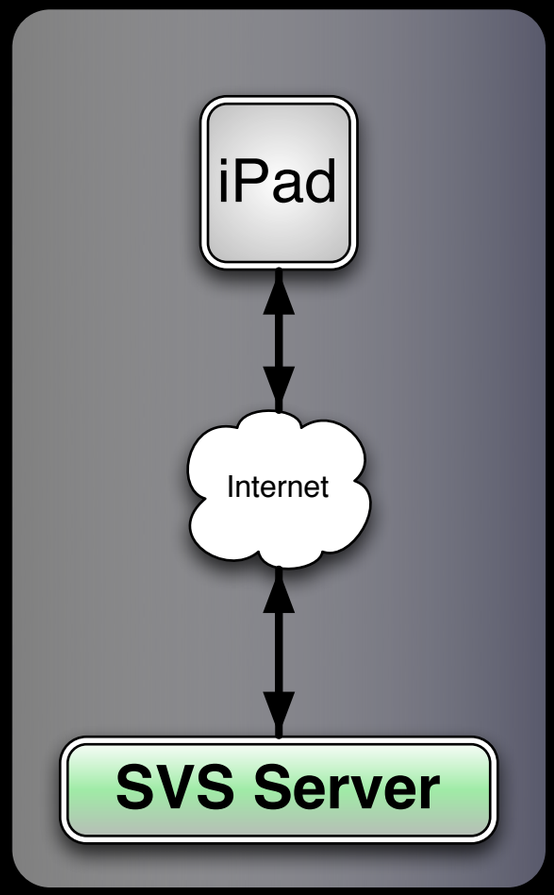
How it works

- Existing SVS database modified to support iPad stories

- Everything is online



How it works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     measure salinity across all the oceans every week. The data will undoubtedly help answer some of
     our most pressing questions about climate change. Why measure ocean salinity? The density of ocean
     water is determined by salinity and water temperature. Density drives the pattern of deep ocean
     currents, and ocean currents drive global climate. In recent decades, scientists have seen ocean
     salinity shift in ways that only climate change seems able to explain. Until now, salinity data
     came from slow-moving ships and a network of floating sensors that could only provide a limited
     global picture. Satellite technology changes that: From 400 miles (644 km) above Earth Aquarius'
     hypersensitive microwave radiometer can detect differences in ocean salinity to within a pinch of
     salt in a gallon of water. Let the science begin.
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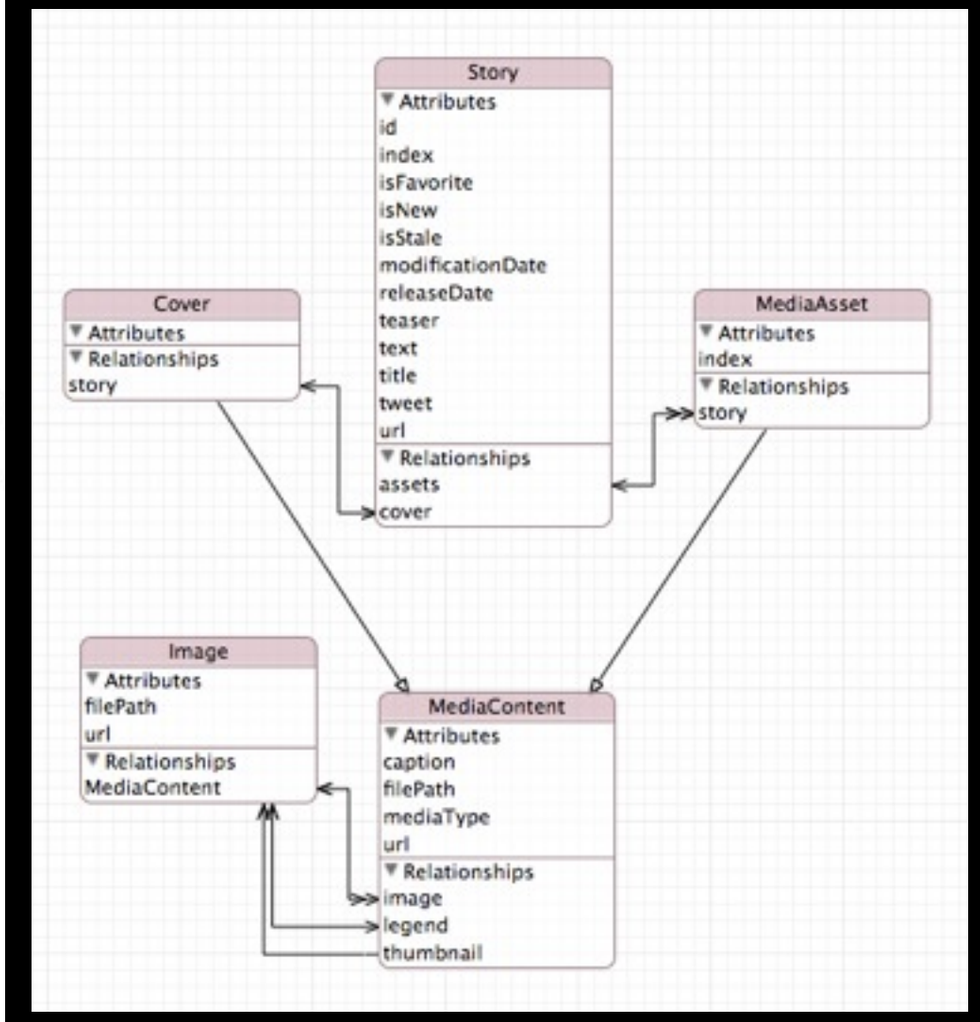
XML feed (on the web)



How NASA Viz sees it

How it works

- But what about video?
- HTTP Live Streaming protocol
- Automatic video quality

How the user sees it

Content Release

- Internal “preview” feed
- Automated release process

App Release / Updates

- *Ad hoc* builds
- Beta test
- App approval process
  - Added layer of NASA standards

Updates

- User feedback
- New stories
- Future development of app

Questions?

- http://svs.gsfc.nasa.gov/nasaviz/
- Made possible by:

Inclusive Innovation (I^2) Program,
Peter Hughes, Chief Technologist, NASA/GSFC

Earth Science Storytelling Project,
Ming-Ying Wei, Program Manager

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