



# SkyServer Voyages

## Next Generation Educational Activities Using the Sloan Digital Sky Survey

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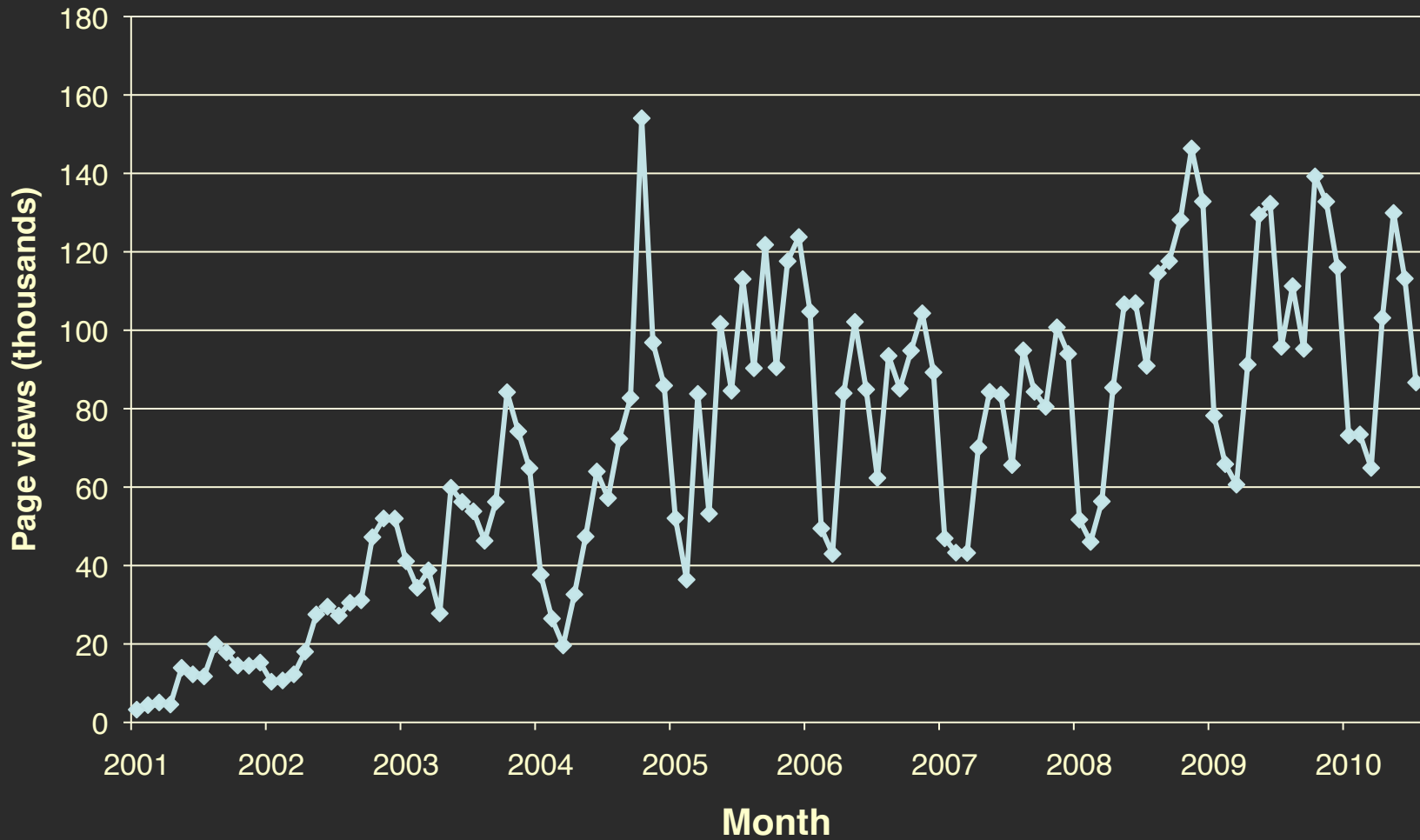
# So far: SkyServer lessons

- Started in 2001
- Learn science with SDSS data
- Middle school through college
- Graphs with Excel
- More than 100 hours of lessons

The screenshot shows the SkyServer DR10 website. The top navigation bar includes links for Home, Data, Schema, Education, Astronomy, SDSS, Contact Us, Download, Site Search, and Help. The main content area is divided into several sections: 'Welcome to the DR10 alert!', 'Data Access' (with sub-sections like Quick Look, Explore, Finding Chart, Image List, Search, etc.), 'Education' (with sub-sections like Lesson Plans, Middle School, High School, etc.), 'Links' (with sub-sections like For Educators, Data Release ID, etc.), and 'Help' (with sub-sections like Start Here, FAQ, Glossary, etc.). There are also small thumbnail images of galaxies and stars.

The screenshot shows the SkyServer DR9 website. The top navigation bar includes links for Home, Data, Schema, Education, Astronomy, SDSS, Contact Us, Download, Site Search, and Help. The main content area features a 'DR9 Projects' section with a tree view showing categories like Solar System, Scavenger Hunt, The Universe, Asteroids, Types of Stars, Color, Galaxies, Advanced Research, and Challenges. The 'Color' category is selected. To the right, there is a section titled 'Colors of Stars in the SDSS' with a text-based lesson and a small image of stars.

# Project Page Views per Month



# Weaknesses



- Outdated web technology (2001-2005)
- Relies on desktop tools like Excel
- Too time-consuming for most classrooms
- Too much assumed knowledge
- Unclear how to build to advanced tool use

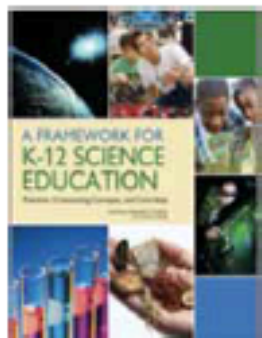
# Design and Direction 2012



- Major Pressures in Science Ed
  - New Science Framework
    - STEM, Process Skills, Content
  - Next Generation Science Standards
    - Addresses the content from the Framework plus themes and practices
  - Common Core Standards
  - Increasing need to differentiate
  - Time

# Release of Next Generation Science Standards

Spring 2013



THE NATIONAL ACADEMIES  
*Advisers to the Nation on Science, Engineering, and Medicine*

July 2011



2011-2013



Assessments

Curricula

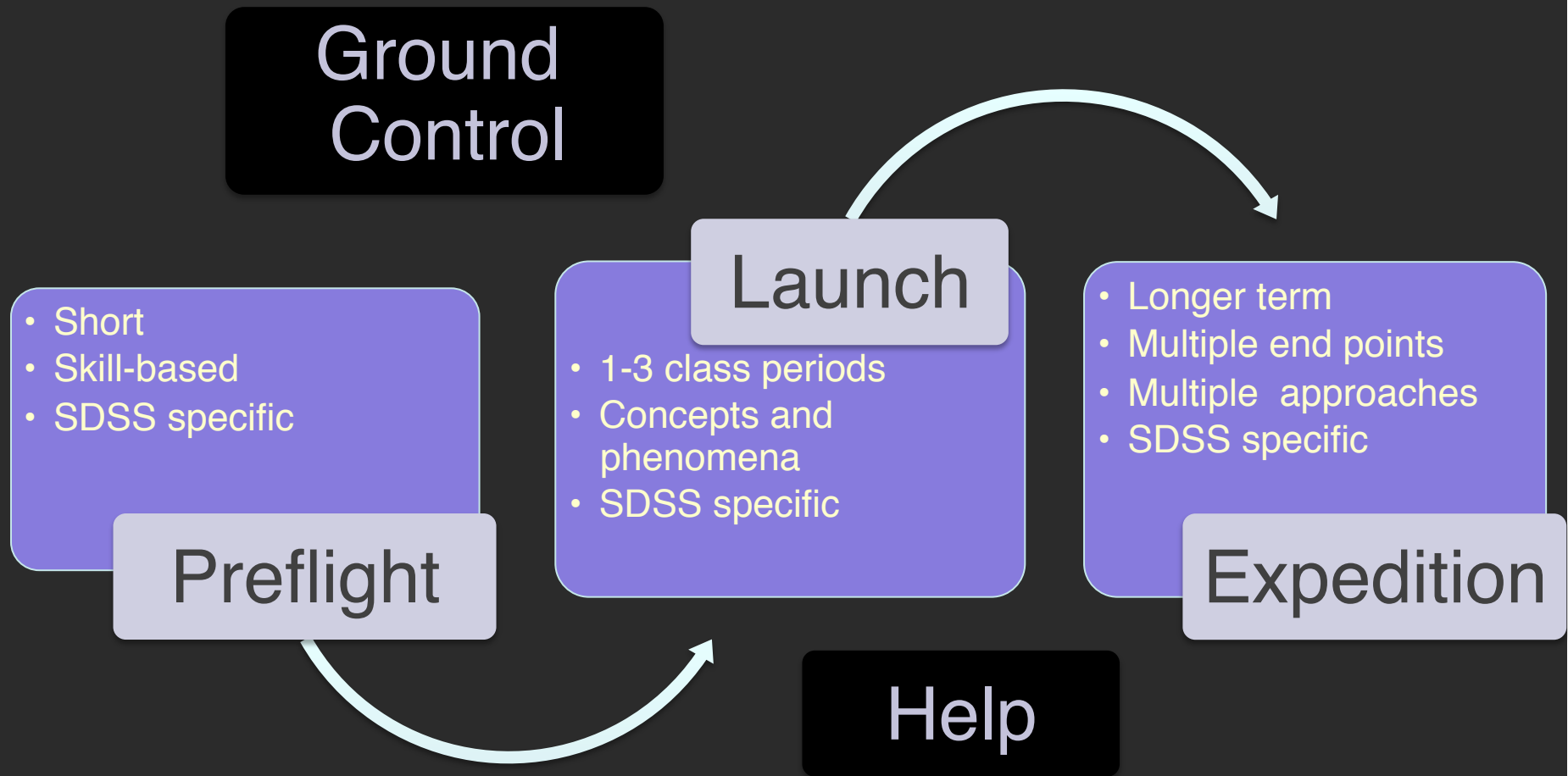
Instruction

Teacher  
Development

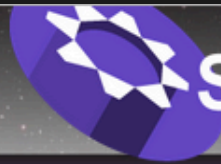
# Major Considerations From the NGSS

- Research has led to a better understanding of what constitutes effective inquiry-based science instruction
- Strands of science all come together around a performance expectation.
- Strong emphasis on science and engineering practices
- More thorough integration of engineering content and practices

# Informing the Structure of Voyages







# SDSS Voyages

[Home](#)

[Ground Control](#)

[Pre-Flight](#)

[Launch](#)

[Expeditions](#)

[Help](#)

[Tools](#)

SDSS III

## Welcome to Sky Server Voyages!



Voyages is a new resource from SkyServer for explorers of the Sloan Digital Sky Survey database. The activities in Voyages can be utilized by various ages and teaches many astronomy topics including Red Shift, Magnitude and much more. Students and teachers are able to interact with astronomy through the the Sloan Digital Sky Survey database in a new and fun way, and utilizing a great astronomical resource.

### Ground Control

Resources for Teachers



### Pre-Flight Training

Skill Building Activities



### Launch

Physics and Astronomy Activites



### Expeditions

Guided Research Projects



# Integrated Landing Page for EPO



## SDSS Resources

[General Info](#) [News](#) [SDSS Surveys](#) [Just for Kids](#) [Projects](#)

This would be a very brief description of SDSS, and some of the projects...or just the images with the slide over descriptions as the homepage...with the links like above.

photo

Rollover description  
overlayed onto the  
photo...clickable link  
to project page

Rollover description  
overlayed onto the  
photo...clickable link  
to project page



# Timelines and Possibilities



- Some pilot testing underway now
- Content Transfer – June 2014
- Transfer to JHU servers by June 2014
- First pilot testing of materials with teachers  
June and July 2014
- Revision on-going

# Plans and Possibilities



- Survey specific Expeditions and resources
- Integration of Zoo Tools Dashboard
  - SkyServer Notebook tool login through CasJobs completed
- Activities that focus on engineering
- Accessibility
  - Blind and visually impaired
  - Deaf and hard of hearing
  - Non-native speakers
- Voyages as part of a broader integrated SDSS EPO