NSB Information Item

The iPlant Collaborative: Cyberinfrastructure for the Life Sciences

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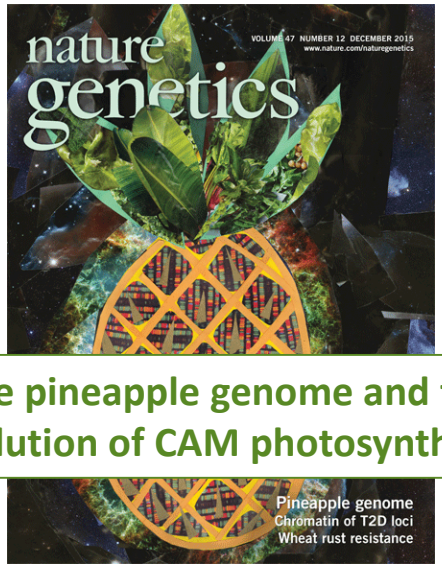
February 2016

Overview

- iPlant is having a transformative impact on data-to-discovery RESEARCH in life sciences and beyond
  - User metrics
  - Publication record
- iPlant has become a reference model for CYBERINFRASTRUCTURE
  - Modular, extensible design
  - Hub in an interoperable cyberinfrastructure ecosystem
- iPlant is on a path to SUSTAINABILITY
  - Maintenance of high-value operations
  - Continued development and innovation

iPlant Cyberinfrastructure

Advancing Transformative Data-to-Discovery Research



The pineapple genome and the evolution of CAM photosynthesis

Whole-genome analyses resolve early branches in the tree of life of modern birds

INTERNATIONAL JOURNAL OF CLIMATOLOGY

RMetS Royal Meteorological Society

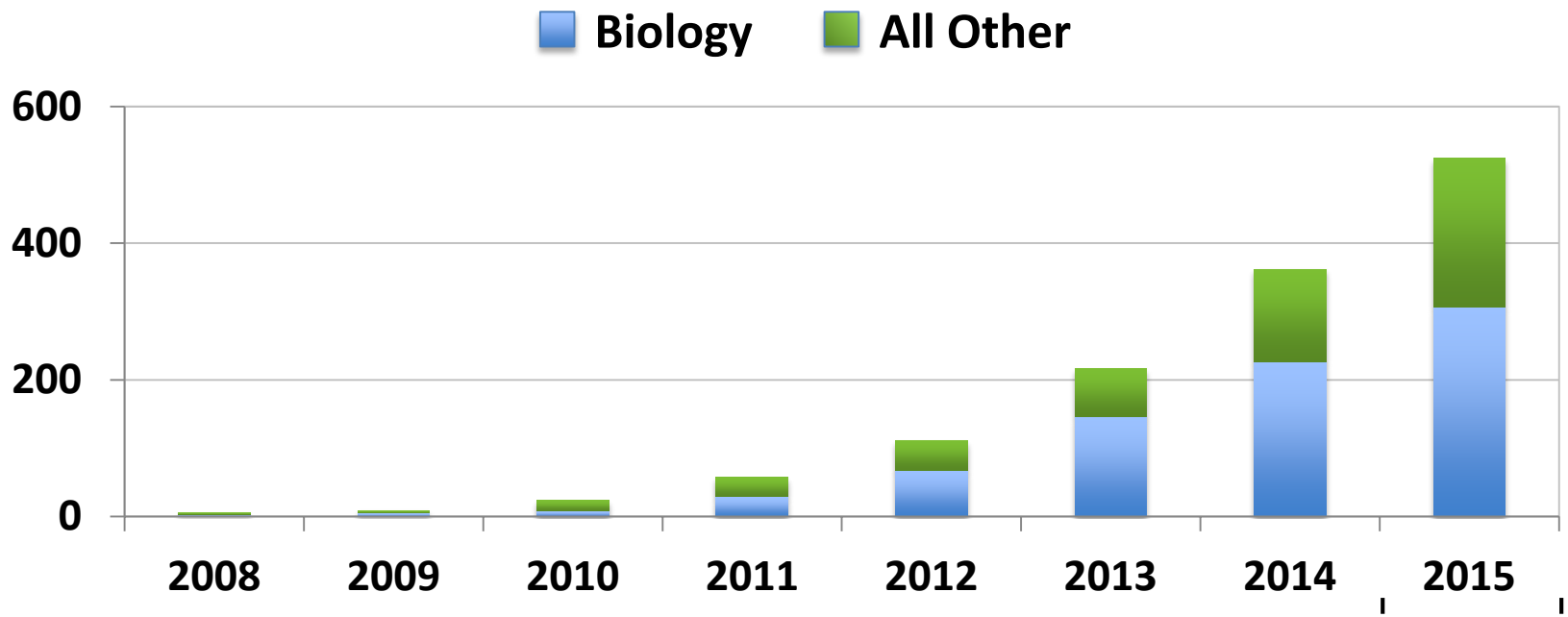
Using multi-timescale methods and satellite-derived land surface temperature for interpolation of daily maximum air temperature

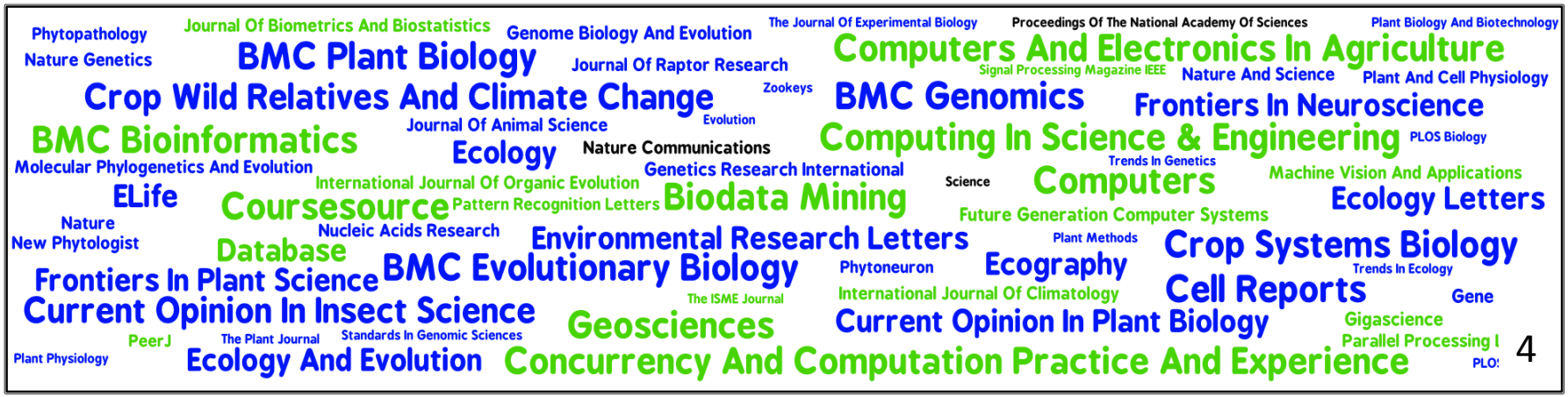
Wild-Type N-Ras, overexpressed in breast cancer…promotes tumor formation

frontiers in Neuroscience

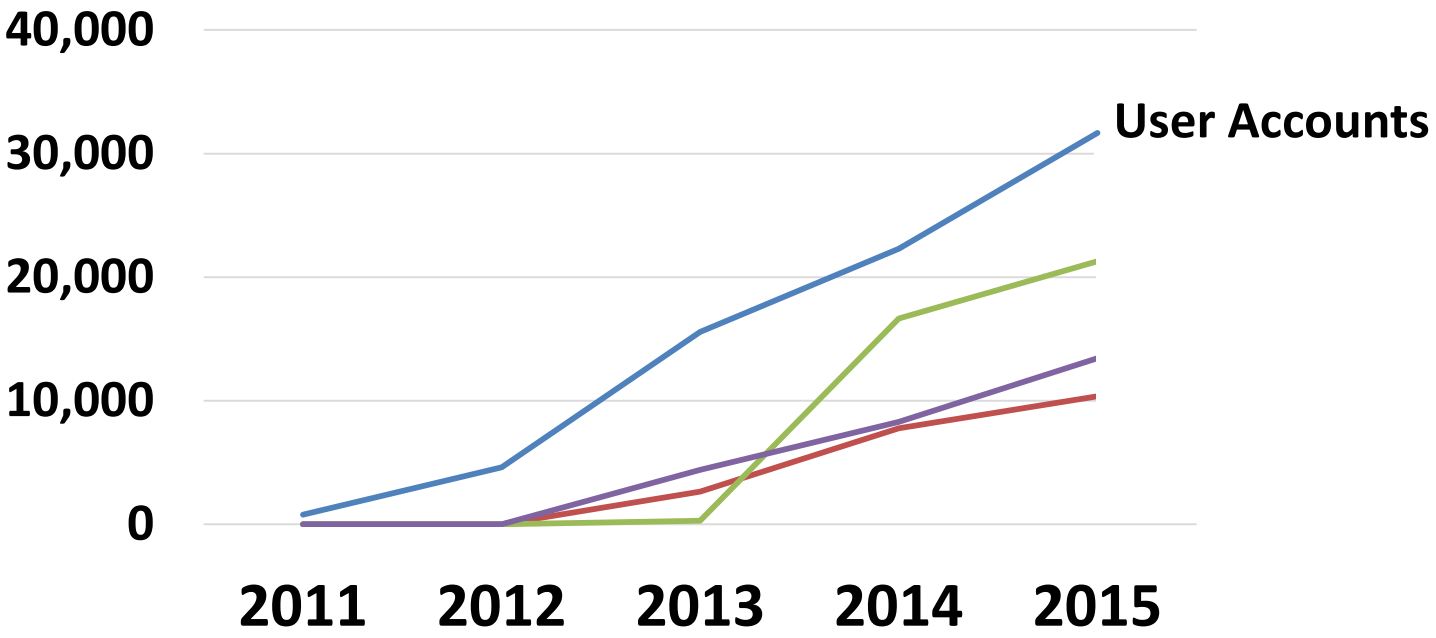
Identification of dopamine receptors…among vertebrates

Increase in Publications Citing iPlant





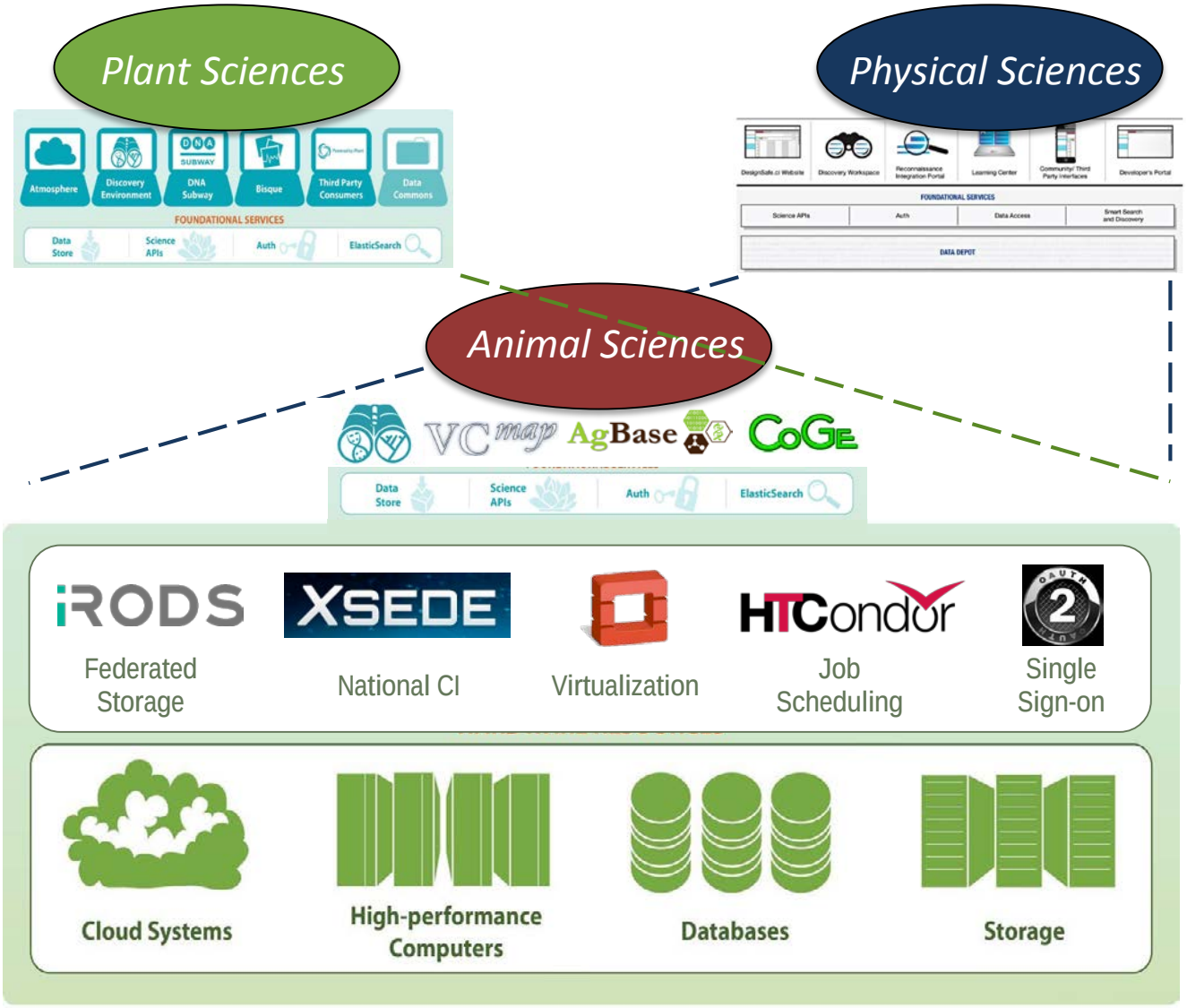
Strong and Growing User Base



Active Users	Participating Institutions	
	Academic	Non-academic
10,511	1,205	583

iPlant: Reference CI Model

Transforming Research in All Disciplines



Increased disciplinary emphasis

Increased interdisciplinary sharing

Science Platforms

and

Domain-specific services

Established software and CI

Hardware resources

iPlant: Hub of a Growing CI Ecosystem

"Imitation is the sincerest form of flattery." – *Charles Caleb Colton*

IPLANT UK

BBSRC bioscience for the future

Plant genomics, phenomics, and systems biology

iAnimal

USDA NIFA

Bovine genomics

iVirus

GORDON AND BETTY MOORE FOUNDATION

Marine virus metagenomics

VDJ SERVER

NIH

Immunology research data

DESIGNSAFE-CI
A NATURAL HAZARDS ENGINEERING COMMUNITY

NSF

Earthquake, wind and water hazards modeling

Arizona Astronomy Data Hub

THE UNIVERSITY OF ARIZONA.

Astronomy data curation and management

iPlant's Future

The iPlant Collaborative is now CYVERSE™

- **Scientific Goals**
  - **Enable data-driven discovery**
  - **Foster an ecosystem of CI interoperability**
  - **Develop a workforce of new data scientists**
- **Financial Goals**
  - **Develop and implement a plan for sustainability**
  - **Recruit sustaining funding**

> "Support of ongoing operations and maintenance of existing cyberinfrastructure that is *critical for the continued advance of priority biological research*…must be limited to activities and materials essential for maintaining the current level of functionality." (BIO/DBI/ABI)

  - **Recruit funding for new activities**

CYVERSE™

Future Funding Model

Operations / Maintenance (60-70%)

- Solo and Co-Partner Grants
- Institutional / State Support
- Fee for Service / Subscriptions

Development (15-25%)

- Co-Partner Grants
- Strategic Partnerships

Innovation (15-25%)

- Grants
- Partners
- Spin-off

THE UNIVERSITY OF ARIZONA

Arizona Environmental Grid Infrastructure Service

BILL & MELINDA GATES foundation

Integrated Breeding Platform
Today's tools for tomorrow's crops

NSF CISE/ACI- 1445604

Summary

- iPlant has a demonstrated record of transformative impact on data-to-discovery RESEARCH in life sciences and beyond
- iPlant has become a reference model for CYBERINFRASTRUCTURE
- iPlant--as CyVerse--is on a path to SUSTAINABILITY

The iPlant Collaborative

www.cyverse.org