



**On the cover:**  
Weak gravitational lensing doesn't alter distant galaxies' images as much as is illustrated here, but the science gained could be just as dramatic.

SPACE ART: CASEY REED

## FEATURES

- 14 Astronomy & Big, Big Data**  
How will astronomers cope with the tsunamis of raw data soon to pour in from wide-field surveys? *By Peter Tyson*
- 22 Observing Through a Truly Large Telescope**  
The author and friends enjoyed a memorable night of observing through what was once the world's largest telescope. *By Robert Naeye*
- 30 Find Your Dawes Limit**  
The famous resolving-power rule for telescopes may not apply to you. Try these close double stars to find out. *By Phillip Kane*
- 34 Strong Prospects for Weak Lensing**  
Astronomers are mapping tiny distortions in the images of distant galaxies to study the invisible — dark matter and dark energy. *By Govert Schilling*
- 68 Planetary Processing with Autostakkert! 2**  
This freeware takes the drudgery out of stacking planetary videos. *By Emil Kraaikamp*

**COVER STORY**

SKY & TELESCOPE (ISSN 0037-6604) is published monthly by Sky & Telescope, a division of F+W Media, Inc., 90 Sherman St., Cambridge, MA 02140-3264, USA. Phone: 800-253-0245 (customer service/subscriptions), 888-253-0230 (product orders), 617-864-7360 (all other calls). Fax: 617-864-6117. Website: SkyandTelescope.com. © 2016 F+W Media, Inc. All rights reserved. Periodicals postage paid at Boston, Massachusetts, and at additional mailing offices. Canada Post Publications Mail sales agreement #40029823. Canadian return address: 2744 Edna St., Windsor, ON, Canada N8Y 1V2. Canadian GST Reg. #R128921855. POSTMASTER: Send address changes to Sky & Telescope, PO Box 420235, Palm Coast, FL 32142-0235. Printed in the USA.

## OBSERVING SEPTEMBER

- 41 In This Section**
- 42 September's Sky at a Glance**
- 43 Binocular Highlight**  
*By Mathew Wedel*
- 44 Planetary Almanac**
- 45 Northern Hemisphere's Sky**  
*By Fred Schaaf*
- 46 Sun, Moon & Planets**  
*By Fred Schaaf*
- 48 Celestial Calendar**  
*By Alan MacRobert*
- 52 Exploring the Solar System**  
*By Kevin Bailey*
- 54 Deep-Sky Wonders**  
*By Sue French*

## S&T TEST REPORT

- 58 iOptron's iPANORAMIC AllView Pro Camera Mount**  
*By Alan Dyer*

## ALSO IN THIS ISSUE

- 4 Spectrum**  
*By Peter Tyson*
- 6 Letters**
- 7 75, 50 & 25 Years Ago**  
*By Roger W. Sinnott*
- 8 News Notes**
- 12 Cosmic Relief**  
*By David Grinspoon*
- 64 New Product Showcase**
- 66 Astronomer's Workbench**  
*By Jerry Olton*
- 73 Gallery**
- 84 Focal Point**  
*By John Mariska*



CINDY HUNT / MOUNT WILSON INSTITUTE

22

There's more to find online @  
**SkyandTelescope.com**

## TIPS FOR BEGINNERS

Here's everything you need to jump into the fun of astronomy.  
[SkyandTelescope.com/letsgo](http://SkyandTelescope.com/letsgo)

## SKY AT A GLANCE

Our popular column highlights celestial delights for the upcoming week. Also available as an app — with sky charts included!  
[SkyandTelescope.com/ata glance](http://SkyandTelescope.com/ata glance)

## ASTROPHOTO GALLERY

Enjoy readers' best images and upload your own.  
[SkyandTelescope.com/gallery](http://SkyandTelescope.com/gallery)

## S&T MARKETPLACE

Browse personal used equipment and sell your own without paying a fee.  
[SkyandTelescope.com/marketplace](http://SkyandTelescope.com/marketplace)



Find us on  
**Facebook & Twitter**