Insight

- Pleiades Astrophoto - Juan Conejero - Valencia, Spain
- Pteam - Vicent Peris, Carlos Milovich, etc.
- PixInsight LE 2004 - PixInsight Core 2007 - 1.8 Ripley 2013
- [http://www.pixinsight.com](http://www.pixinsight.com) - 207 Euros - 64-bit only
- Windows - Mac - Linux - FreeBSD; C++
- 125 Processes and Scripts - dvl/scrpt/prcss
Pros

- For Astro-imagers by Astro-imagers
- One Stop Shop for Pre and Post Processing
- All inclusive - no 3rd party Plugins needed
- OS-like host framework- native and user contributions
- Cutting Edge Algorithms
- Unparalleled Mosaic Tools
- Dynamic Evolution
Cons

- 32-bit no longer supported
- Limited Documentation*
- Not for everyone
- Absence of convenient PS-style Layers and…
- Difficulty of PixelMath
- Preprocessing not visually interactive such as CCDStack/MaxIm

*mouseovers, PI community, tutorials
Misconceptions

- Steep Learning Curve
- User Community is a Zombie Cult
- Not Complementary with Photoshop
- Images result in a ‘PixInsight Look’
PixInsight

Manuel J
It’s not the plane, it’s the pilot
Keys to the Kingdom

- Harry Ian Page  www.harrysastrosched.com
- IP4AP.com - RBA and Myself  www.ip4ap.com
- PixInsight Forum  http://pixinsight.com/forum
- Gerald Wechselberger  http://www.werbeagentur.org/oldwexi/PixInsight/PixInsight.html
- RBA’s Officially Unofficial  www.deepskycolors.com
- SWAP 2013- 11/14-15 Hotel Tucson City Center Innsuites
- Be very wary of misinformation! YouTube, CN, etc.
Salient Features

- STF - Screen Transfer Function
- DBE Background Modelization and Repair
- Agnostic Color Calibration
- Wavelet-based Deconstruction/Reconstruction
- Masks - Range and Star
- New Instance Icons
- Multiple Workspaces
- Projects
BPP Script
BPP, cont’d.

- Separate Output Folders (c  c+cc  c+cc+r  c+cc+r+i)
- 6 Different Rejection Algorithms…
- Winsorized and Average Sigma (sm) Clipping, Linear Fit (lg)
- Rejection Maps
- Lanczos 3 registration
- Separate modules available (ImIn)
Deconvolution

Tedious and quirky but very effective…

The culprit is Deringing/Global dark and bright settings

DynamicPSF process to determine Point Spread Function

Regularized Richardson-Lucy algorithm w/ built-in NR

Applied to areas of high S/N via Range Mask

Uses a Star Mask as local deringing support image only
DBE
Background Neutralization

Thanks Jon Talbot!
Color Calibration
ColorCalibration
Wavelets
ATWT
Masks
PixelMath

i.e. $75 \times \text{Original Image} + 25 \times \text{Revised Image}$
Intensity Transformations
New Instance Icons
## Typical Workflow

### Luminance
- BatchPreprocessing Script
- DynamicCrop
- DBE
- DynamicPSF
- Deconvolution
- ATrousWaveletTransform NR
- HistogramTransformation

### Chrominance
- BatchPreprocessing Script
- DynamicCrop
- DBE x 2
- ChannelCombination RGB
- BackgroundNeutralization
- ColorCalibration
- HistogramTransformation
- LRGBCombination (CNR+SAT)
Typical Workflow, cont’d.

- TGVDenoise or ACDNR
- HDRMultiscaleTransform if appropriate
- LocalHistogramEqualization
- ATWT (lg), MMT (sm), USM sharpening
- SCNR - subtractive G
- MorphologicalTransformation if appropriate
- Curves if appropriate
- ColorSaturation if appropriate
- DarkStructureEnhance script if appropriate
Layers

Photoshop

Luminance/Chrominance

- Marry later in life
- Bckgrnd Adjustment Duplicate Smart
- Blend Mode and Opacity
- Masks and their edge properties
- Channels (RGB or Lab option)
Lab v. Layers

PixInsight

Luminance/Chrominance

- Marry early in life
- Indie Access via channels (labcrgb)
- Masks applied to images
- Blend Mode/Opacity via PixelMath
psd v. xosm

Photoshop Document
- No History upon reopening
- Background Image
- All Layers w/ adjustments
- Associated Masks
- Notation, etc.

PixInsight Project
- History Explorer
- All Images (incl. masters)
- Masks as images
- Process and Script settings
- Icons
- Workspaces
- Notation
1 - Extract Stars
2 - Subtract Stars
3 - Apply Luminance Mask
4 - CurvesTransformation
5 - LHE
6 - Recombine
7 - Result