

# NEVEC PRIMA activities

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# Outline

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- **An overview of NEVEC**
- **An overview of PRIMA**
- **NEVEC PRIMA activities**
  - **Tender activities**
  - **Calibration**
  - **Pre-PRIMA Survey**
  - **STJ as FSU**
- **Opportunities for collaboration**

# NEVEC

- Development of instrument modelling, data reduction, and calibration techniques for VLTI
- Accumulation of expertise relevant for a second-generation VLTI instrument
- Education in VLTI

FOR MORE INFO...

Bakker et al., 2001, in *ESO workshop on "Science drivers for ESO future VLT/VLTI instruments"*, <http://www.strw.leidenuniv.nl/~nevec/>

# PRIMA

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- **Phase Referencing and Milli-arcsecond Astrometry**
- **Four sub-systems:**
  - Star separator (2" beams, seperated 1')
  - Metrology (15 nm over 30 minutes)
  - Differential Delay line (5 nm)
  - Fringe Sensor Unit

# NEVEC PRIMA activities

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- Tender (Le Poole)
- Calibration (Percheron)
- Pre-PRIMA survey  
(Percheron/Rottgering)
- STJ as FSU (Meisner)

# Tender

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- **Input by Le Poole for the PRIMA tender papers**

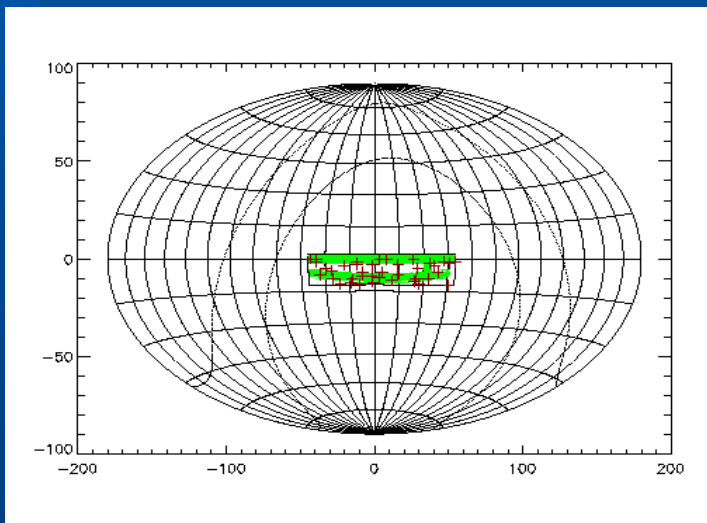
# Calibration

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- **Source list based on VLTI calibration program (NEVEC-ESO)**
- **Calibration procedures**
  - **Bootstrapping**
  - **Resolved sources**
  - **Self calibration, CHARM and VLTI calibrators catalogue**

# Pre-PRIMA Survey

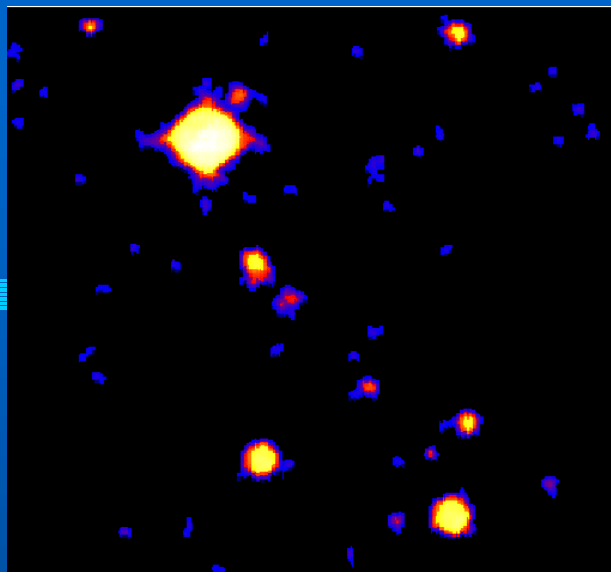
- A survey around PRIMA reference object to search for science objects (NEVEC-ESO)



50 reference source extracted

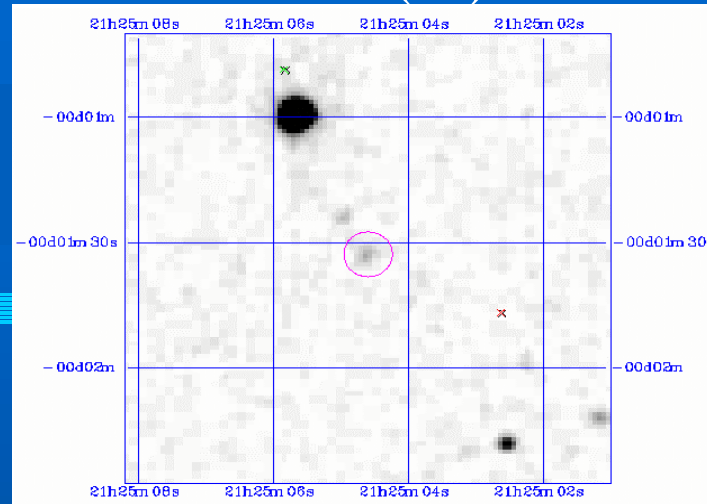


# Palomar BLUE (2')



aps\_mosaic\_0\_575.24040.fits (512 X 512 pixel preview)  
 RA: 21:22:30.7 Dec: -00:14:31.1 (B1950.0) Field Width: 2.0'  
 (c)1997 APS/U. of Minnesota Thu Sep 13 10:41:43 CDT 2001

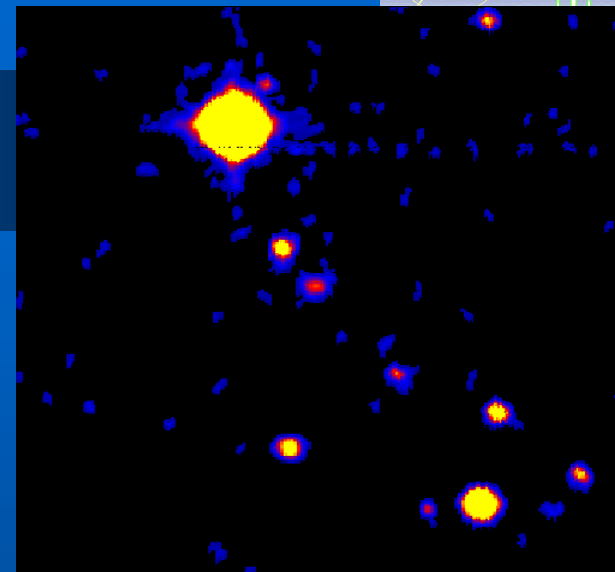
# 2MASS (2')



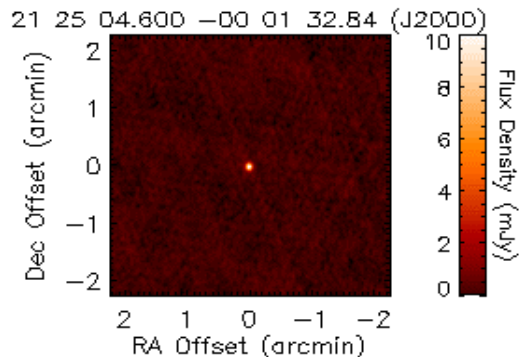
# FIRST (4')

# NVSS (13')

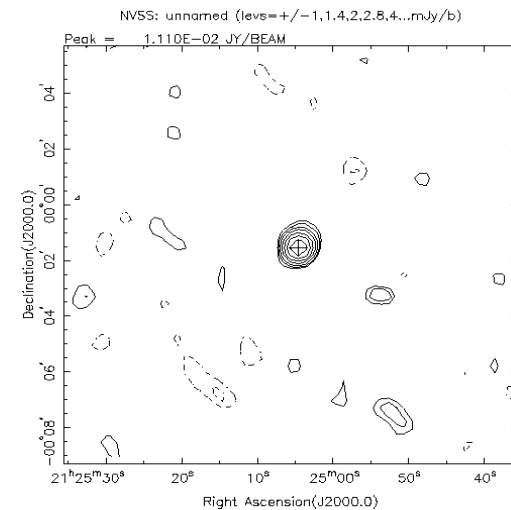
# Palomar RED (2')



aps\_mosaic\_E\_575.24060.fits (512 X 512 pixel preview)  
 RA: 21:22:30.7 Dec: -00:14:31.1 (B1950.0) Field Width: 2.0'  
 (c)1997 APS/U. of Minnesota Thu Sep 13 10:41:43 CDT 2001



150 x 150 pixels extracted from FIRST image 21255-00130E  
 Brightest pixel is 10.30 mJy/beam at  
 X, Y = 75, 75 pixels  
 RA, Dec = 21 25 4.613 -00 01 32.40 (J2000)  
 RMS noise 0.162 mJy



# STJ as FSU

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- **STJ characteristics (NEVEC-ESA)**
  - Super Tunnel Junction as Fringe Sensor Unit
  - Photon counting device (1 Kph/#)
  - Energy resolving capabilities ( $R=5$  at 2 micron)
  - Increases PRIMA limiting magnitude by up to 4 magnitudes

# Opportunities for collaboration

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- **PRIMA calibration**
  - Source list
  - Procedures
- **Pre-PRIMA survey**
- **STJ as FSU: feasibility study**
- **Study on pros and cons of phase referencing versus closure phase**