Mid-IR Imaging & Spectroscopy of L 1641-N

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Progress Report on ISOCAM
Star-Formation Templates

CVF & broad-band data
CVF Templates

- B 335
- L 1555
- Finish this list
Data Reduction

What We do have figured out:

- Dark Current
- De-Glitching (Auto & Manual)
- Transient (F-S) ... more or less
Data Reduction

Problems:

• Transients
• Flat-Fielding
• Flux Calibration
L 1641-N

- Both broad-band & CVF coverage.
- LW2  6.75 microns
- LW3  15 microns
- CVF1  5 – 9 microns
- CVF2  9 – 18 microns
Background on L 1641-N

- IRAS discovered point source
- Optically invisible CO outflow (Fukui et al 86)
- Near-IR follow-up
  - Strom et al '89
  - Chen et al '93
- Large number of HH objects (Reipurth et al '98)
Previous results (cont.)

- 2-4" displacement between near-IR and L'- and M-band images (scattered light ... from embedded sources?)
- One source only seen at >4 um
Fig. 1.—$H$, $K$, $nbL$, and $M$ images of L1641-N. The $H$ and $K'$ images cover a 4' x 4' region at the same scale. The $nbL$ and $M$ images cover much smaller areas and are shown at an enlarged scale. The top panel shows the source numbers used in Table 3. The IRAS position is marked by the cross (+).
Star 18
Star 10
Extended Emission
The IRAS point source?

- Chen et al. suggest star 18
  - Within 2" of IRAS co-ordinates
  - Only detected at > 4 microns

- ISO CVF
  - Star 18  284 mJy
  - Star 10  481 mJy
  - IRAS      481 mJy (really!!)

- But, star 10 is ~1 arc-min away.
Summary

- Several young embedded stars (hints from previous studies)
- IRAS "source" likely to be star 10 or multiple sources
- Also not seen in near-IR, diffuse emission (PDR?)
Summary

• From previous work
  – Dynamical age of outflows ($10^4$-10$^5$ yrs)
  – HH objects

ISO = embedded sources

One of the youngest & most active regions of Orion
Summary

- Finally,

Contrast this with Trapezium. Same molecular cloud but very different styles of star-formation

# of sources

Density of sources