SOFIA Observations of Orion with FORCAST

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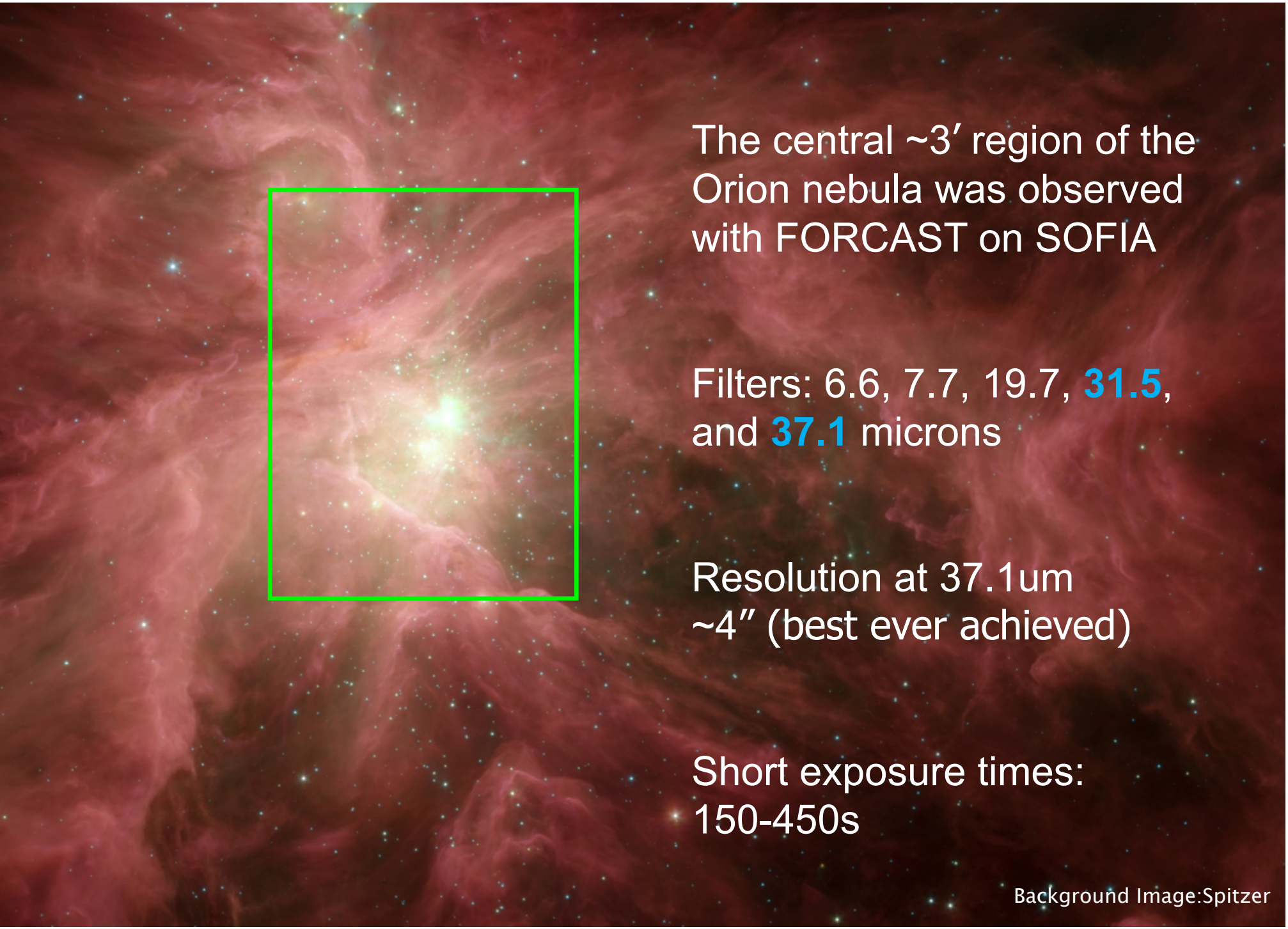


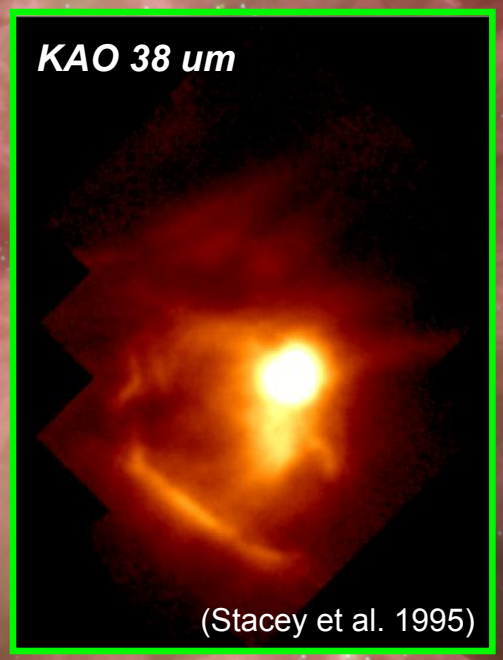
The central ~3′ region of the Orion nebula was observed with FORCAST on SOFIA

Filters: 6.6, 7.7, 19.7, **31.5**, and **37.1** microns

Resolution at 37.1um
~4″ (best ever achieved)

Short exposure times:
150-450s

Background Image:Spitzer



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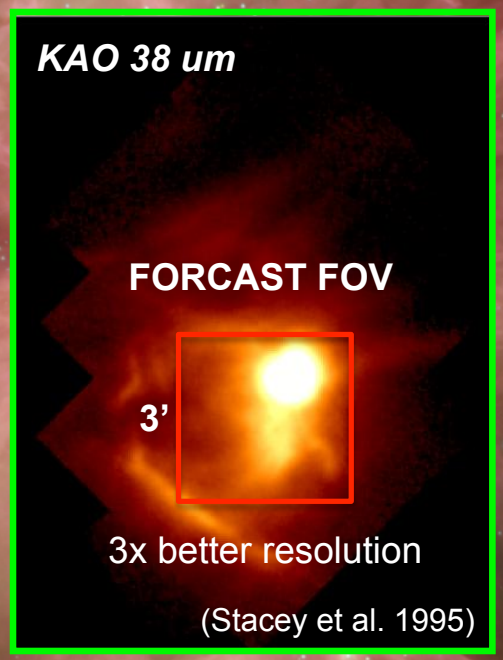

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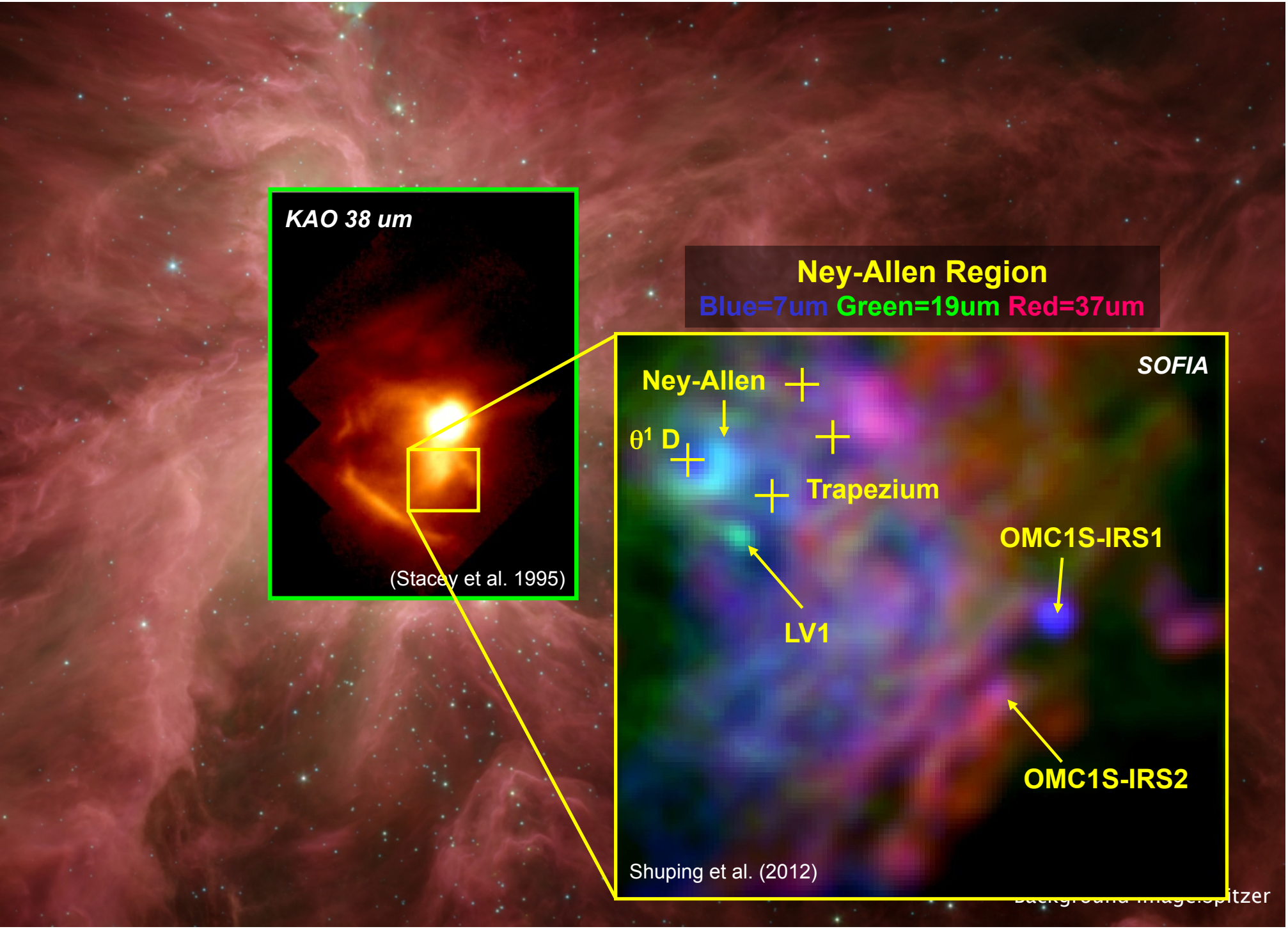
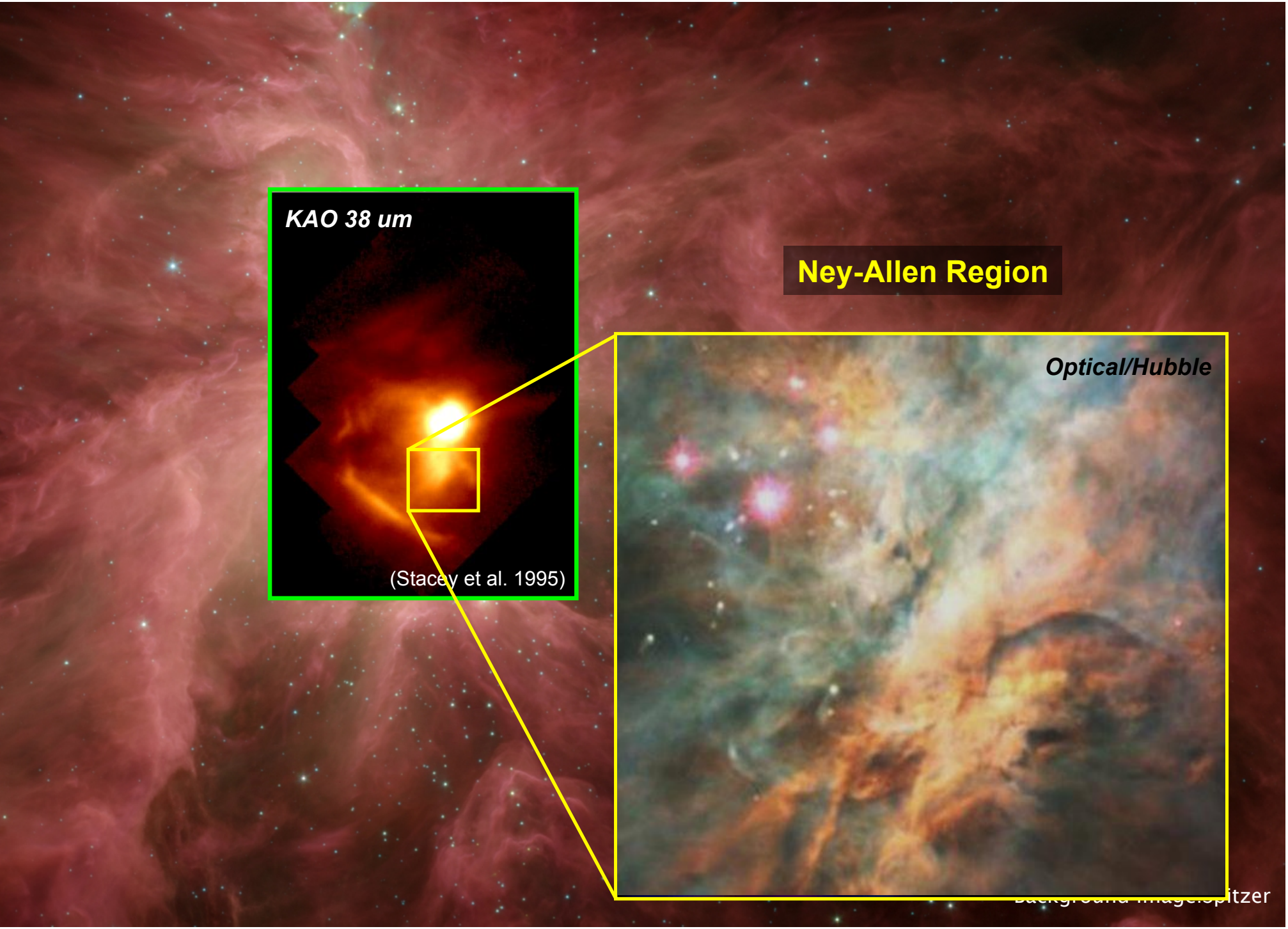
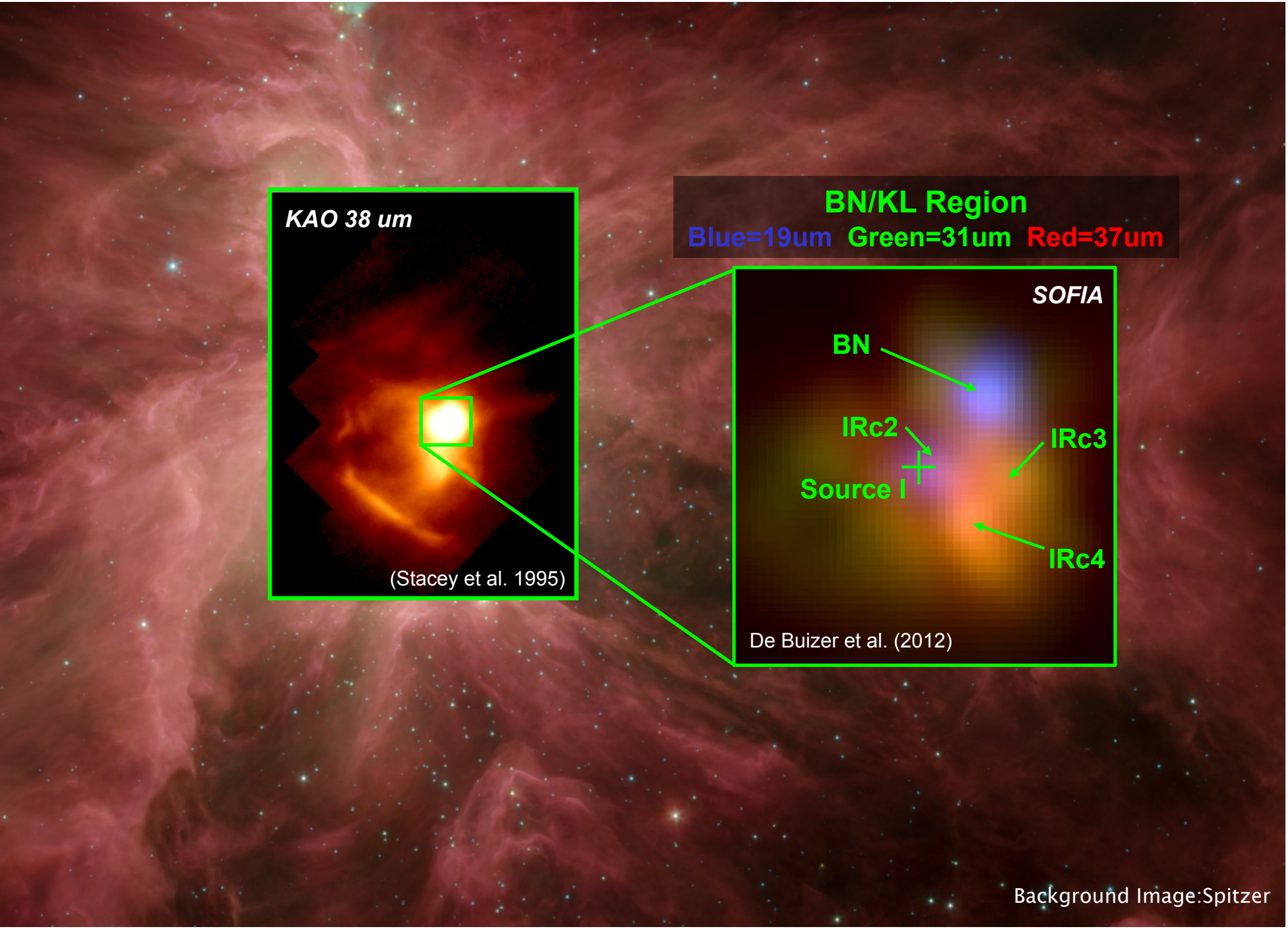
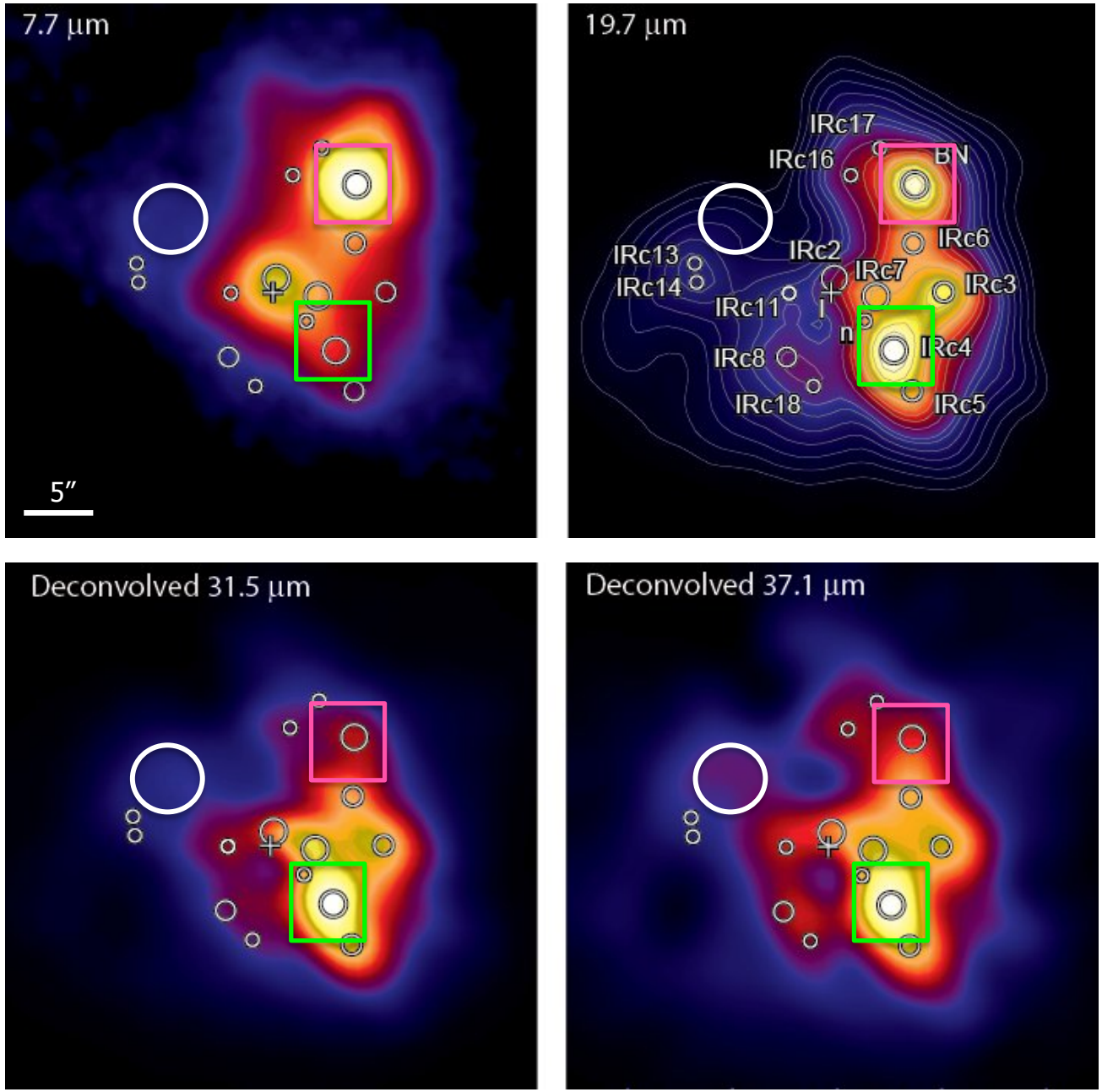

KAO 38 um
(Stacey et al. 1995)
Ney-Allen Region
Blue=7um Green=19um Red=37um
SOFIA
Ney-Allen
θ1 D
Trapezium
OMC1S-IRS1
LV1
OMC1S-IRS2
Shuping et al. (2012)


KAO 38 um
(Stacey et al. 1995)
Ney-Allen Region
Optical/Hubble


KAO 38 um
(Stacey et al. 1995)
BN/KL Region
Blue=19um Green=31um Red=37um
SOFIA
BN
IRc2
IRc3
Source I
IRc4
De Buizer et al. (2012)
Background Image:Spitzer



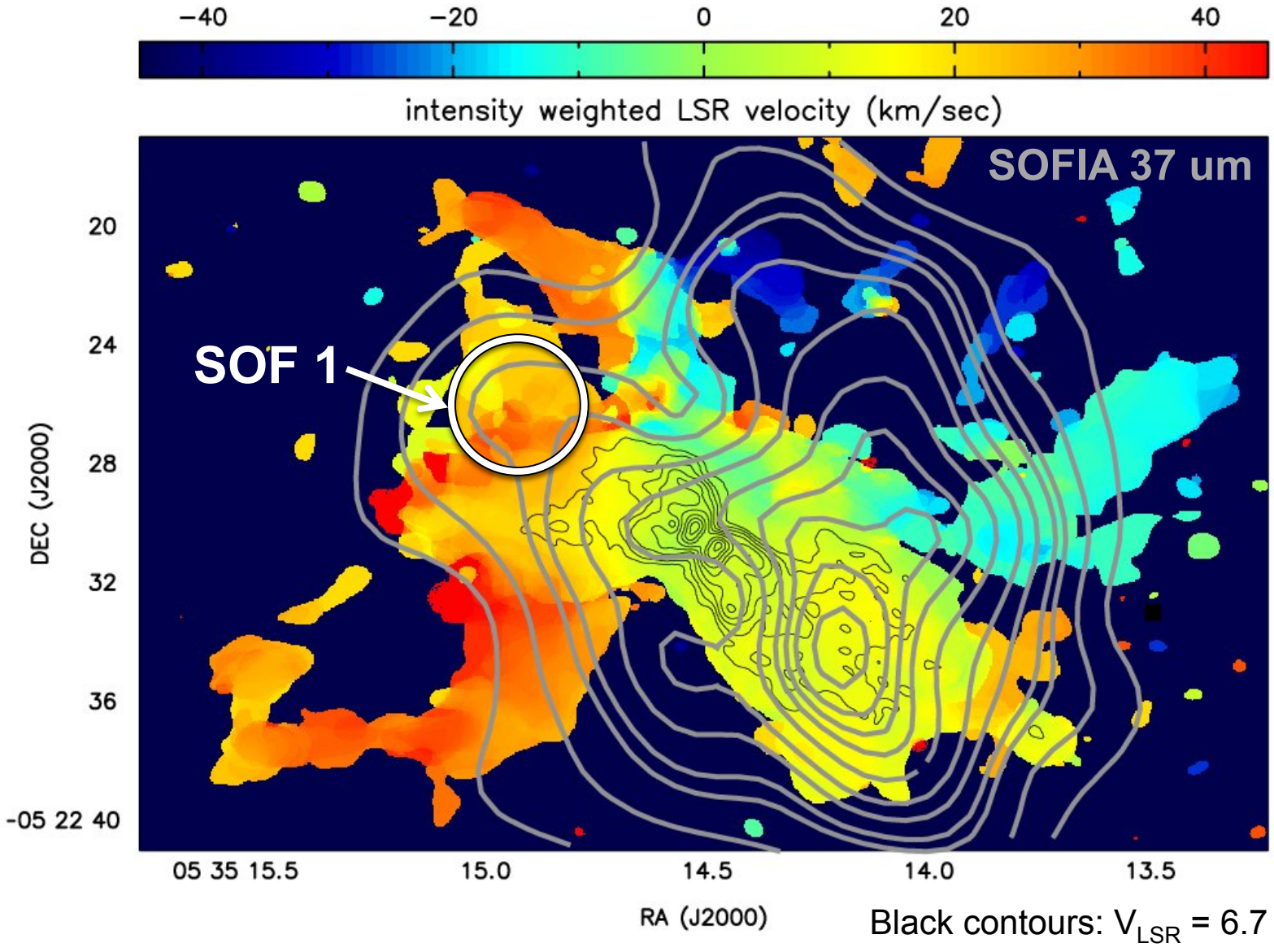
BN declines in prominence at longer λ's

IRc4 dominates at λ >31um

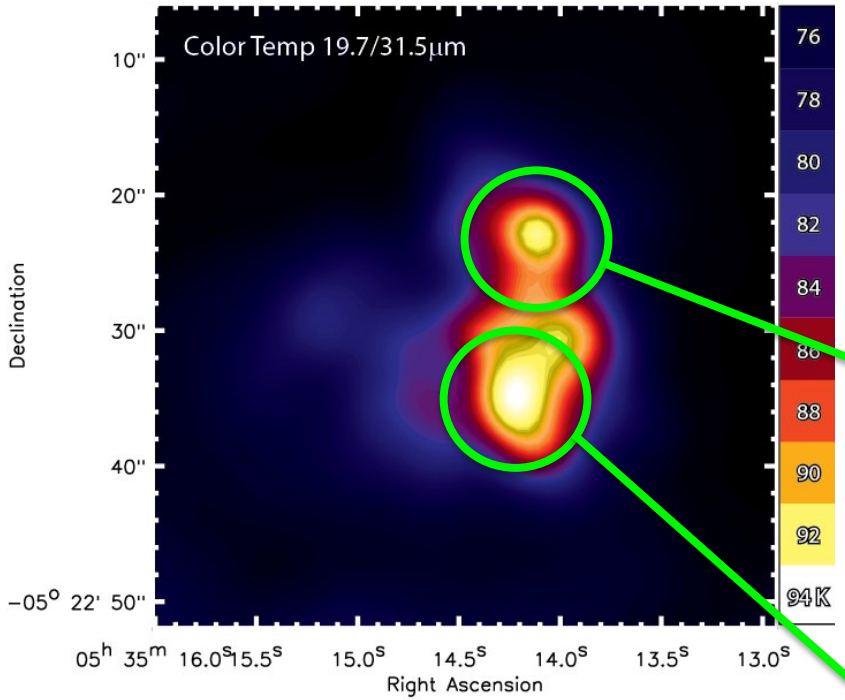
A previously unidentified area of emission is apparent at λ >31um (SOF1)

De Buizer et al. (2012)

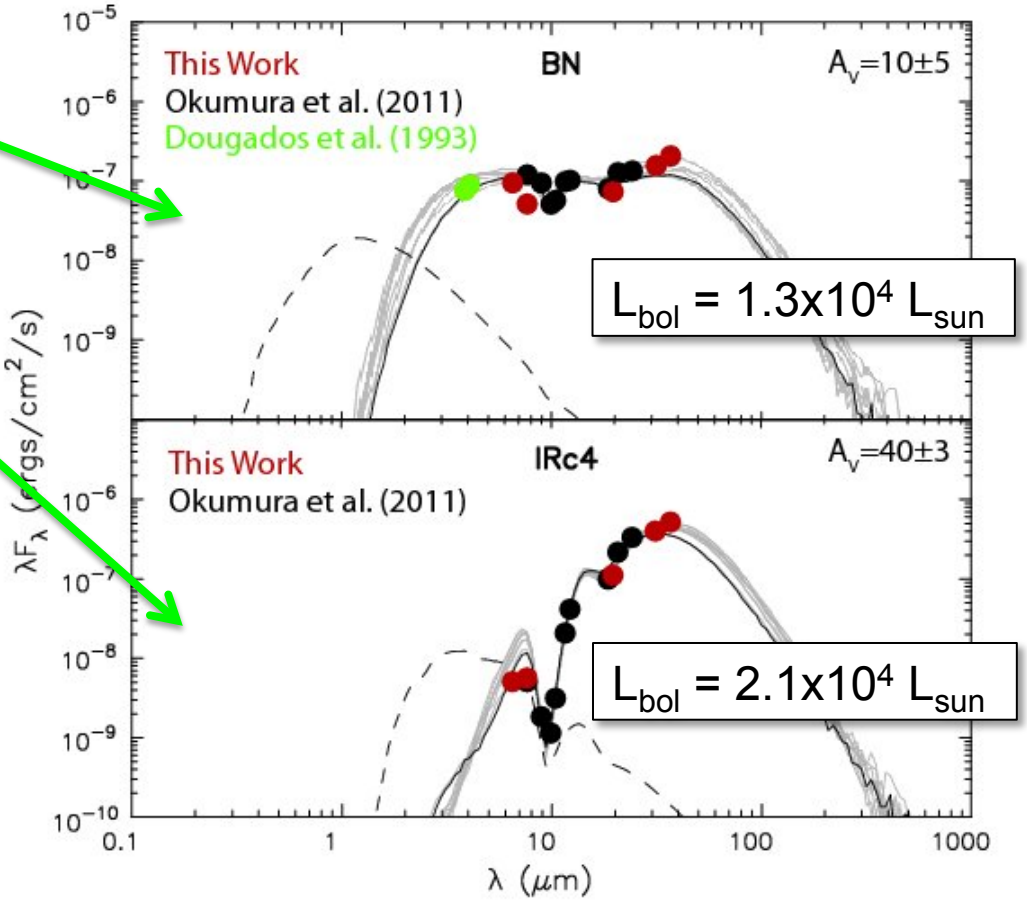
SOF 1 is coincident with the redshifted outflow lobe



Black contours: V_{LSR} = 6.7 km s^{-1}



Like BN, IRc4 is a self-luminous source



IRc4 luminosity is too high to be caused by externally heating

BN+IRc4 account for ~50% of the ~10^5 L_{sun} of the BN/KL region

De Buizer et al. (2012)

Conclusions

- SOFIA/FORCAST observed the central 3′ of the Orion Nebula with the highest resolution ever at 31 and 37 microns
- BN is not prominent at wavelengths 31 microns or longer
- IRc4 is likely a self-luminous source with a luminosity of about 1/4 the entire KL Nebula
- A previously unidentified area of emission, prevalent at wavelengths >31 microns appears to be associated with the outflow cavity