

# The best of two worlds: ALMA + IRAM30m observations of the Orion ISF



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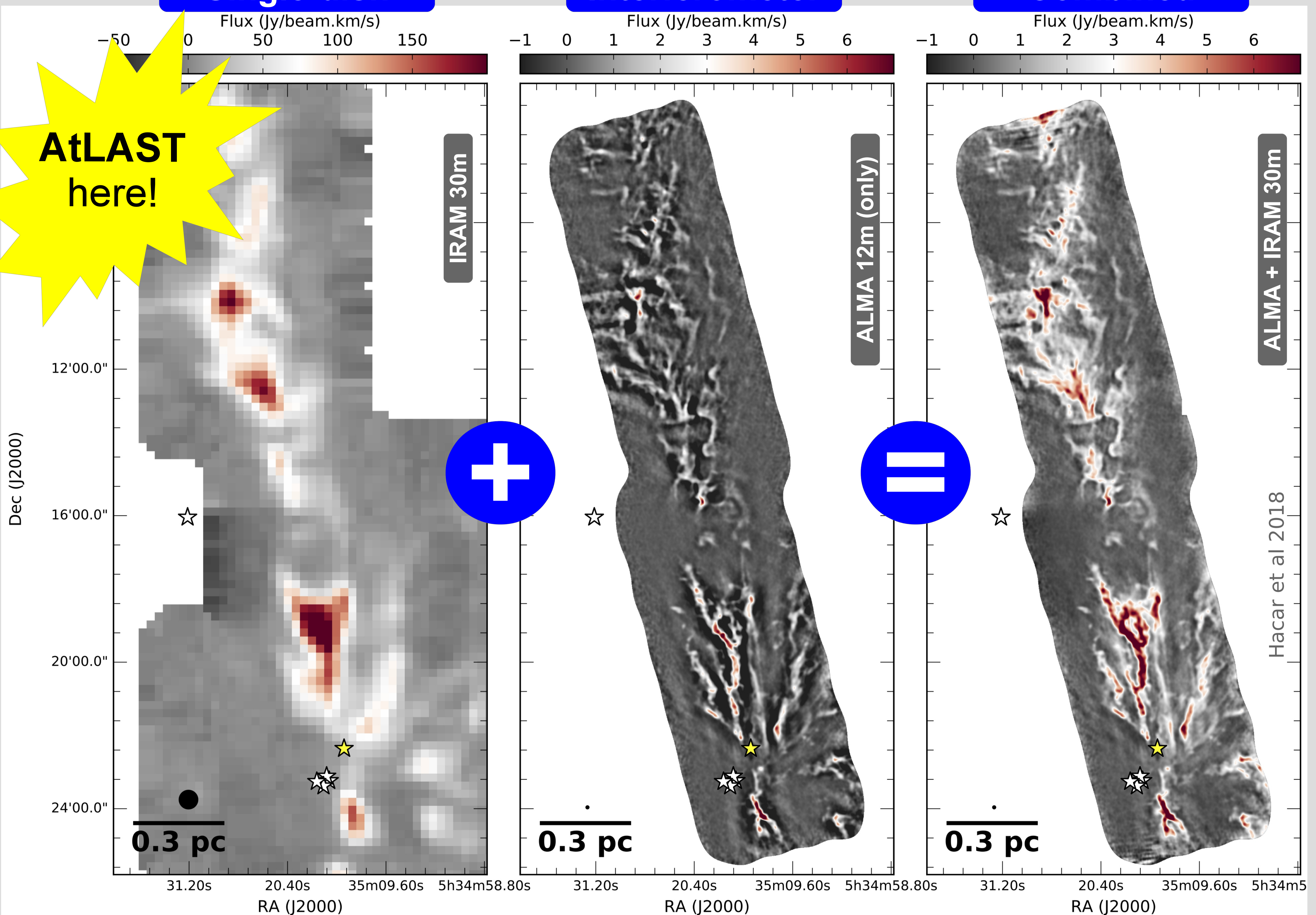
## Abstract

We have investigated the internal gas structure of the Orion Integral Shape Filament (ISF) using two large-scale, 150-pointing ALMA-12m mosaics and previous IRAM30m single-dish (SD) observations. From the combination of single-dish and interferometric data we have produced a high-dynamic range and high-sensitivity map describing the internal gas structure of this filament at scales between 2 pc and 2000 AU (Hacar et al, 2018). In a series of individual CASA reductions (w/o SD data + w/o feathering), we have investigated the impact of the different uv-coverages on both the total flux and line velocity structure of our ALMA maps. Our analysis highlights the critical role played by the zero-spacing data at the different stages of the cleaning process. The results of our ALMA+IRAM30m experiments emphasize the need of high-sensitivity SD observations for the analysis of interferometric maps.

### Single-dish

### Interferometer

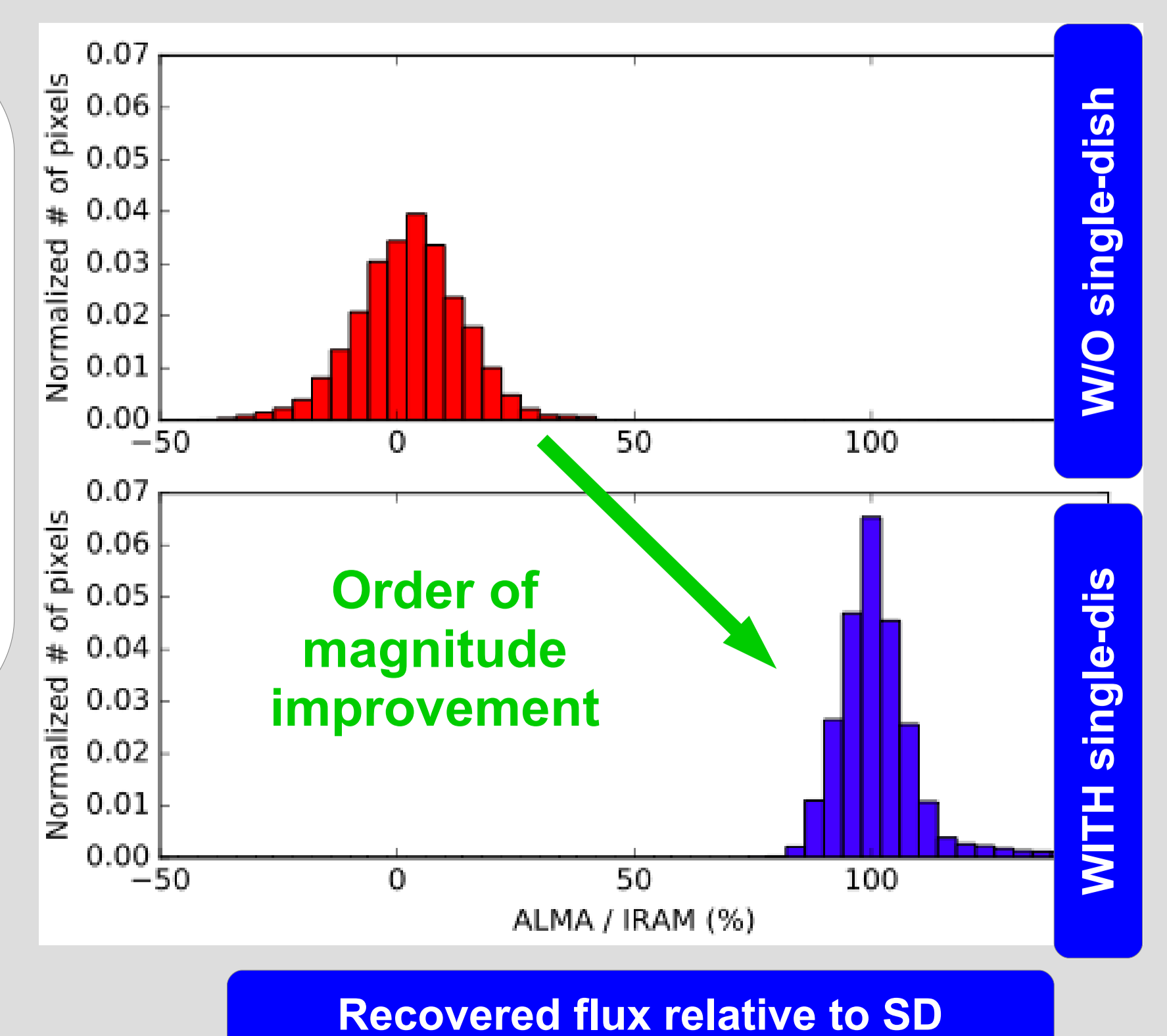
### Combined



## Conclusions

- Filtering effects critically affect line emission in space & velocity in interferometric maps
- Flux variations of more than an order of magnitude without SD info
- Final sensitivity of the combined map determined by the SD data
- High-quality SD data key to interpret ALMA maps
- **Fundamental synergies between AtLAST & ALMA !!**

See also: **Hacar et al 2018**  
accepted for publication in A&A, ArXiv: 1801.01500  
More Info: [sites.google.com/site/orion4dproject/](https://sites.google.com/site/orion4dproject/)



Recovered flux relative to SD