Finding evolved massive stars with VO

X Spanish Virtual Observatory School

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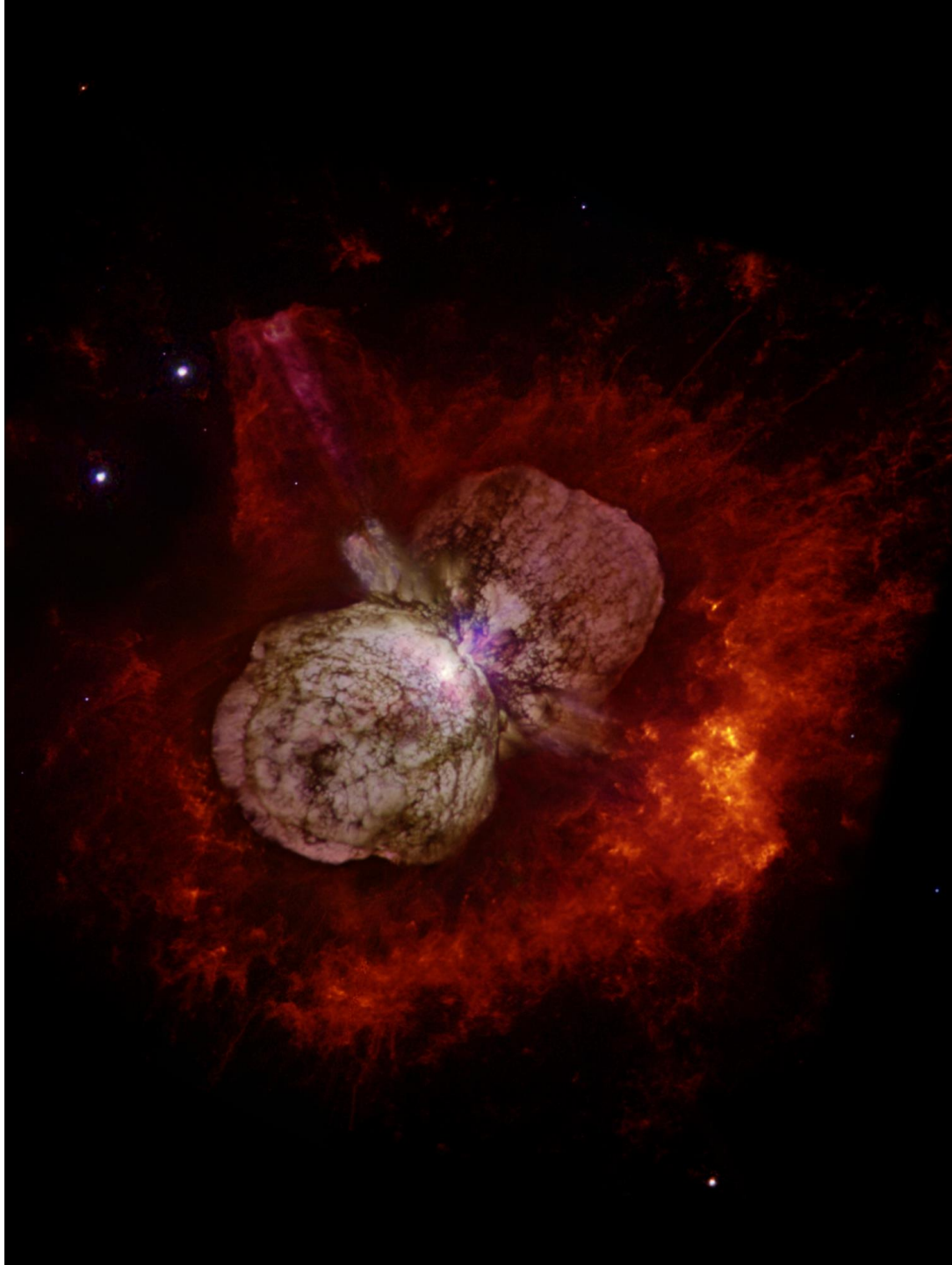
Background

Evolved massive stars

✓Very hot (O/B)
✓Very massive (>20Msun)
✓Surrounded by IR nebulae
✓"Rare" (small population)

GOAL

Find evolved massive stars (point sources) associated to IR shells



Workflow

TOPCAT crossmatch:

Mizuno's catalog (shells @24um)

WISE (psc @ 3.6, 4.6,12 and 22um)

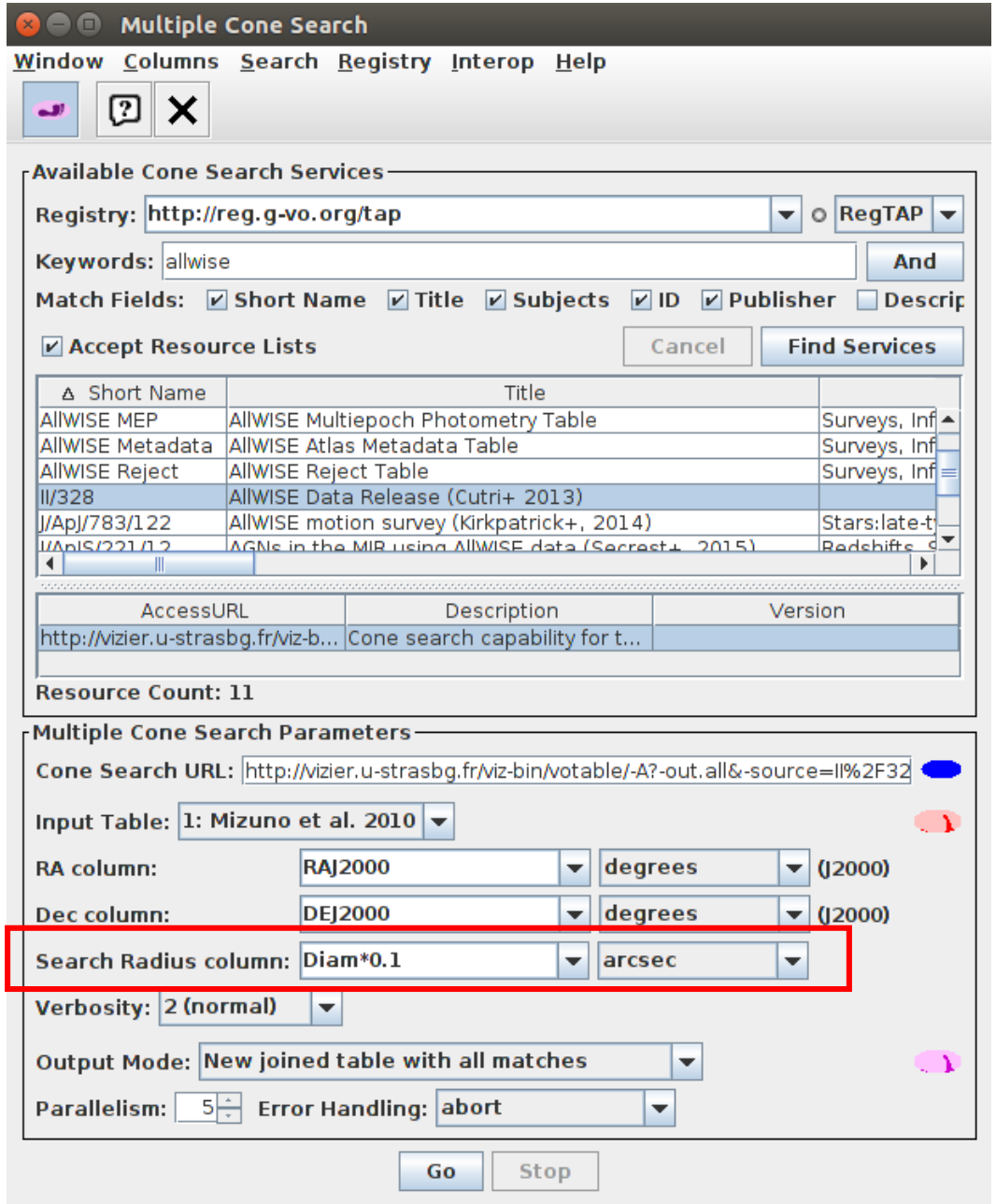
Geometrical criteria

Look for point sources within

R = 10% of each shell radius

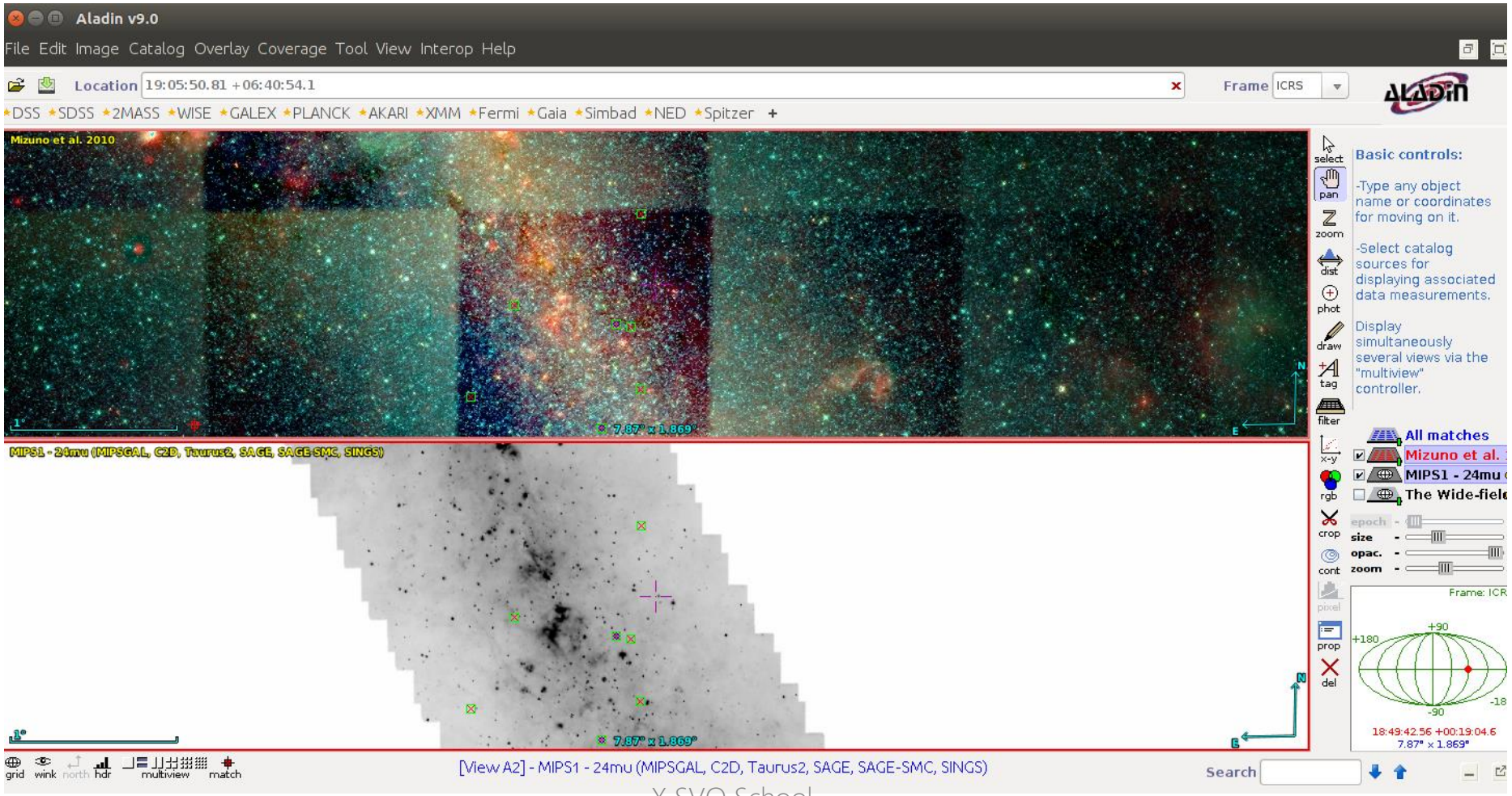
to

avoid distance bias

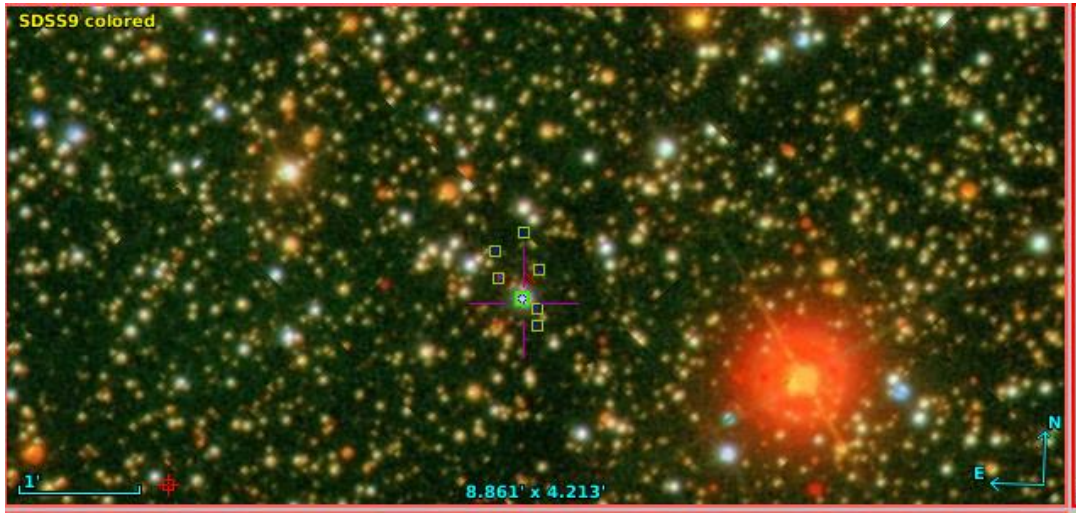


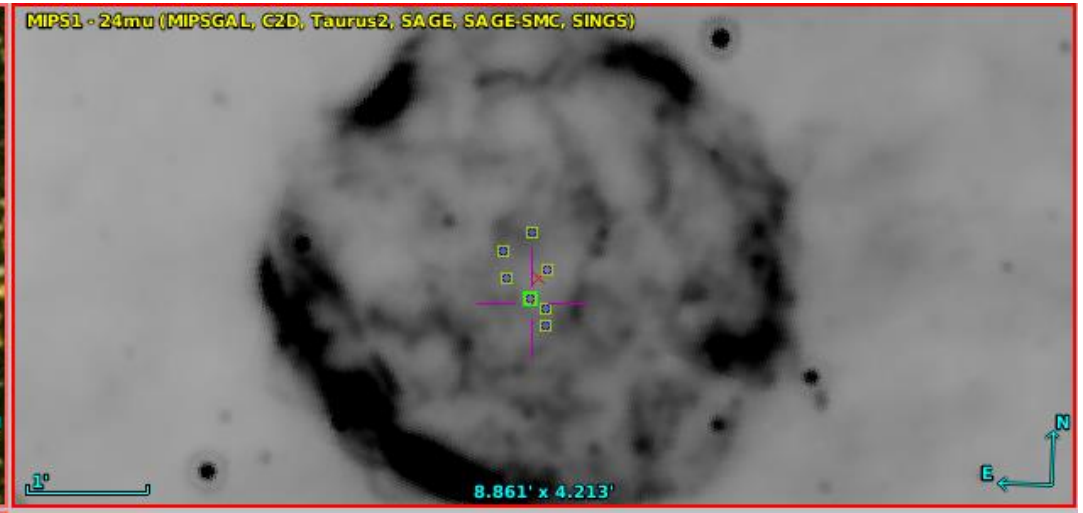
Workflow

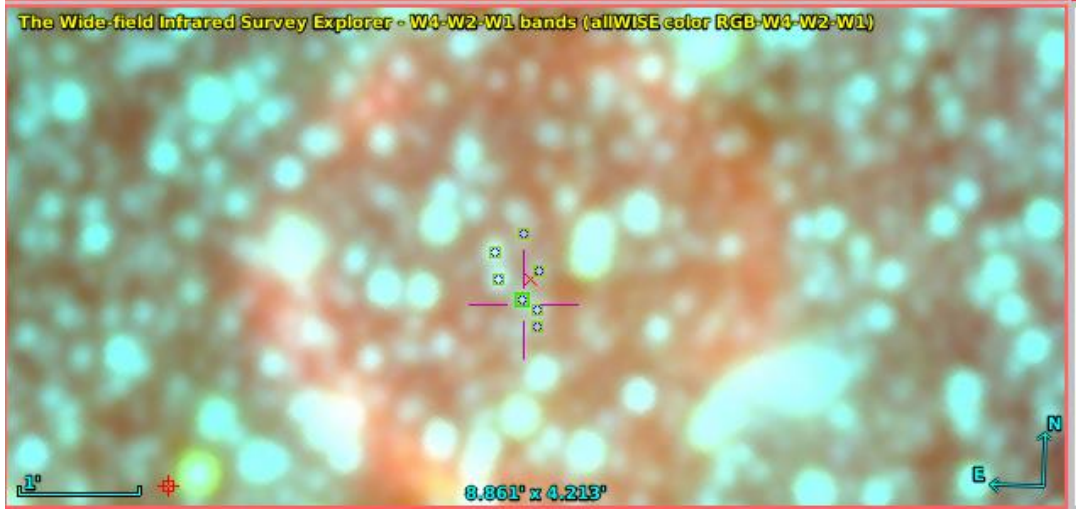
WISE: high density → *many matches* for each shell



Workflow







Individual inspection in ALADIN to:

1. Find the most likely match
2. Discard known objects

Not what we're looking for

*e.g: **Supernova remnant** with 7 WISE candidates*

Future work

Crossmatch with SIMBAD

Mizuno's catalog: **53% unclassified** sources

VOSA:

- SEDs for **unknown** sources
- **Comparison** with control objects
- **Expected result:** new evolved massive stars

LBV G24.73+0.69
(Mizuno's catalog contains known LBV stars)