Triggered Star Formation and Young Stellar Population in Bright-Rimmed Cloud SFO 38

Choudhury, *et al*.

Big Picture:

Choudhury, *et al*., looked at Getman's and Beltran's work, confirmed their YSO and PMS star candidates, plus identified a few more. Choudhury, *et al*., used more IR wavelengths than Getman. They did a lot of book-keeping with respect to new and previously discovered candidates and potential galaxies. Tried to determine if radiation-driven implosion or the "collect and collapse" model best describes star formation in BRCs.

Target area:

They expanded the radius out to 5'x5' in BRC 38. We are going to expand that to 20'x20'.

Things I had to look up….

- Photoevaporation-UV radiation from a nearby hot star strips gas off of a smaller nearby planet or star. Molecules in gas are accelerated by incident UV photons and, if escape velocity is reached, will be stripped from the planet or star.
- ZAMS-Zero Age Main Sequence Stars
- Transitional Disk Objects—Could only find refereed journal articles. I am guessing these are stars that are in the process of losing their disks and becoming MS stars???

Data:

- Spitzer Program #30050. I looked this up; however, there were two entries for BRC 27, and none for BRC 34, or BRC 38. Odd. Am I missing something?
- Figure 2: Displays the two possible stars that are the ionizing sources: HD 206773 and HD 206267. Location of Class 0/I, I, I/II, and Class II are given.
- Figure 6: SEDs for the PMS stars.
- Table 1: Near- and Mid-IR Photometry of Mid-IR Sources. Comments are helpful (such as galaxies, which stars have x-ray data, etc.).
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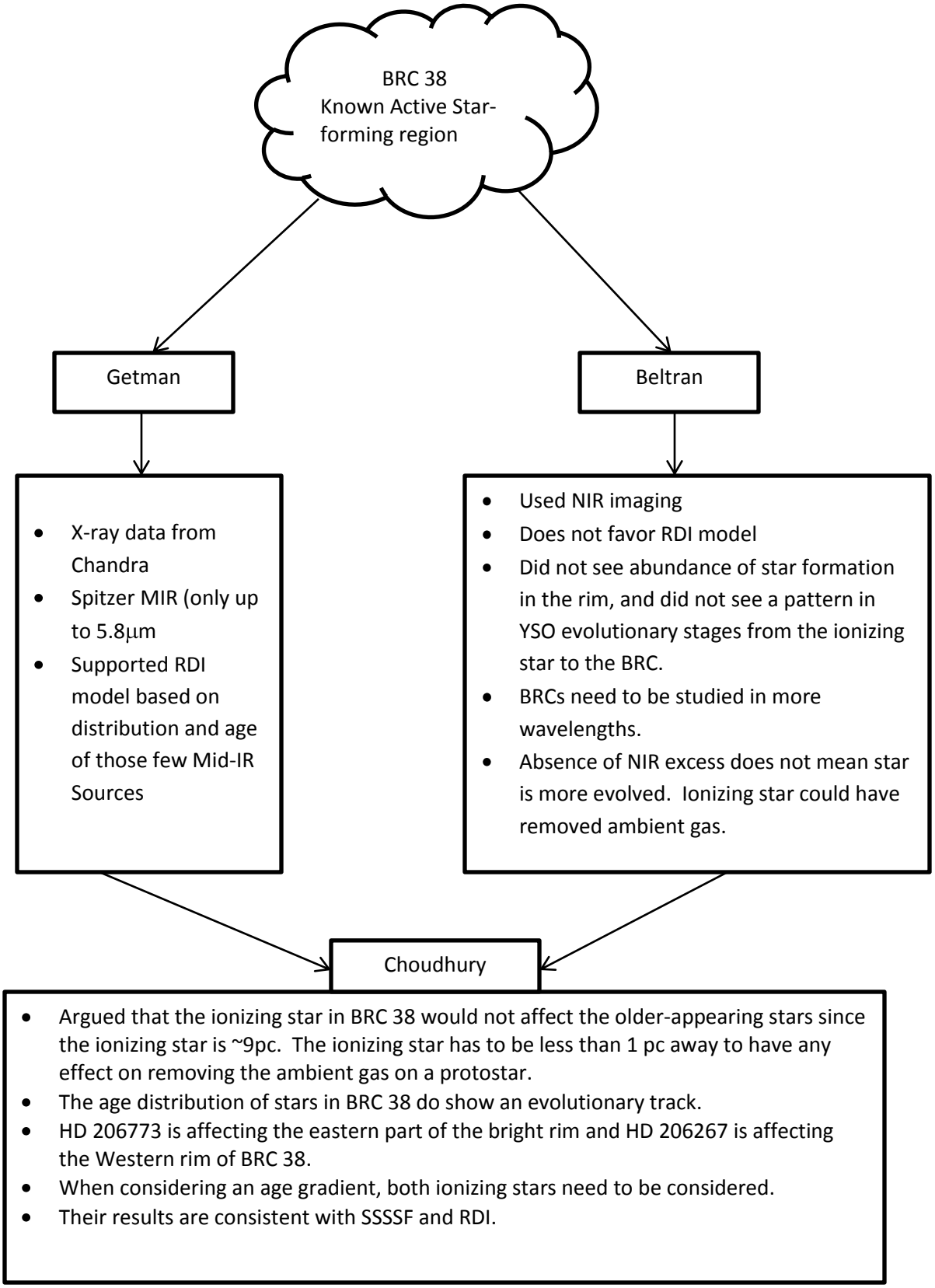
Conclusions:

- Hα emissions in the bright rim are not symmetric. There may be two stars ionizing the gas—HD 206267 (O6.5) [previously associated source] and HD 206773 (B0V) [newly identified possible source].


BRC 38
Known Active Star-forming region
Getman
Beltran
X-ray data from Chandra
Spitzer MIR (only up to 5.8μm
Supported RDI model based on distribution and age of those few Mid-IR Sources
Used NIR imaging
Does not favor RDI model
Did not see abundance of star formation in the rim, and did not see a pattern in YSO evolutionary stages from the ionizing star to the BRC.
BRCs need to be studied in more wavelengths.
Absence of NIR excess does not mean star is more evolved. Ionizing star could have removed ambient gas.
Choudhury
Argued that the ionizing star in BRC 38 would not affect the older-appearing stars since the ionizing star is ~9pc. The ionizing star has to be less than 1 pc away to have any effect on removing the ambient gas on a protostar.
The age distribution of stars in BRC 38 do show an evolutionary track.
HD 206773 is affecting the eastern part of the bright rim and HD 206267 is affecting the Western rim of BRC 38.
When considering an age gradient, both ionizing stars need to be considered.
Their results are consistent with SSSSF and RDI.