* Possibly, those small or large hrus may require some detailed setting for weir capacity. You might define additional weirs having small and large overflow capacity and apply them appropriately to these hrus.
* IRR\_ATM is the amont of irrigation in mm per the entire HRU. You can calculate the total irrigaiton volume by multiplying irr\_atm and the hru area
* IRR\_DEP is supposed to be the depth below ground where subsurface irrigation (if so) is applied, say a drip irrigation. However, this one is not enabled.
* Those output variables in paddy\_test.csv are all in mm unit.
* In the code, dep\_mm is never used for any calculation. I use IRR\_AMT to set the maximum ponding depth in a manual operation schedule. I set 90% of the max depth as the threshold depth. It was a decision I made at some point in the code development. Instead, I might use IRR\_DEP in irr.ops to read a user input value if it works better. For example, you set paddy irrigation to begin on April 25 for the irrigation type named "PONDING50". Then I pick up 50mm as the max ponding depth from irr.ops. Because irr\_eff is 1 and runoff fraction is zero, the effective irrigation volume (if the field is empty) is 50mm (plus some extra to saturate the soil). Irrigation resumes when the water level hits below 45mm. The irrigation source is the channel (OP2=SDC) connected to the HRU (OP3=0). See below the code snippet that prescribes paddy irrigation under manual scheduling.

case ("irrp") !! continuous irrigation to maintain surface

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hru(j)%irr\_src = mgt%op\_plant !irrigation

source: cha; res; aqu; or unlim

hru(j)%irr\_isc = mgt%op3 !irrigation

source object ID: cha; res; aqu; or unlim

hru(j)%irr\_hmax = irrop\_db(mgt%op1)%amt\_mm !irrigation

amount in irr.org, mm

hru(j)%irr\_hmin = hru(j)%irr\_hmax \* 0.9 !threshold

ponding depth, mm

irrig(j)%eff = irrop\_db(mgt%op1)%eff

irrig(j)%frac\_surq = irrop\_db(mgt%op1)%surq

if (hru(j)%irr\_hmax > 0) then

hru(j)%paddy\_irr = 1 !paddy irrigation is on with manual scheduling

else

hru(j)%paddy\_irr = 0!paddy irrigation is off

hru(j)%irr\_hmin = 0

endif

* I assume that a rice paddy HRU has a flatbed for poinding. Thus, 100mm of irrigation in 1ha HRU translates to V=100mm \* 1ha \* 10 = 1000m3. Does this help
* Weir height and width inputs in weir.res are both in meters unit. The weir height output in paddy\_test.csv is in mm unit.
* To get weirQ, you do either:

1) lower weir height during the ponding period

2) irrigate with a target height higher than the weir height, then the weir equation will calculate discharge volume based on the rectangular weir equation

3) had effective rainfall to overflow the weir

* 100mm depth of water in a 30ha hru is still 100mm depth entire field, but 1000m3 volume