HPE/FFMP Focal Point References

1. <u>HPE Token for Configuring Dual-Pol or Legacy HPE Precip Sources</u> (return to top)
   a. This token is configured within the *Hydro Apps->Hydro->Apps_defaults* from the localization perspective:

   > hpe_dualpol_on : yes (using Dual-Pol, default)
   > hpe_dualpol_on : no (using Legacy)

<u>NOTE</u>: In the rare instance that a radar does not have Dual-Pol data, HPE will use Legacy products for that radar if they are available.

2. <u>HPE Token Combinations for Configuring Bias Sources</u> (return to top)
   a. These tokens are configured within the *Hydro Apps->Hydro->Apps_defaults* from the localization perspective.
      i. RFC Mean-Field Bias (default settings; uses RFC MPE-generated mean-field biases)

      > hpe_use_locbias   : OFF
      > hpe_bias_source   : RFC

      ii. Site Mean-Field Bias (uses local MPE-generated mean-field biases)

      > hpe_use_locbias   : OFF
      > hpe_bias_source   : local

      iii. Site Local Bias (spatially varying bias with 40-km search radius from local MPE)

      > hpe_use_locbias   : ON

      <u>NOTE</u>: Setting *hpe_use_locbias* to **ON** overrides the *hpe_bias_source* token, and therefore, it does not matter how *hpe_bias_source* is configured.

3. <u>Setting "misbin" to Configure Radar Used in HPE Beam Blockage Areas</u> (return to top)
   a. These instructions are based off of Greg Hanson's (SH at WFO BTV) instructions. For questions about configuring misbin, please email Jill.Hardy@noaa.gov and Greg.Hanson@noaa.gov.
   b. By default, HPE uses the radar with the lowest beam altitude at the 0.5 degree tilt to populate a given point. In flat terrain, this is usually the closest radar. However, in complex terrain, beam blockage can sometimes result in a higher tilt being used in the precipitation algorithm (not 0.5 degrees), and a more distant radar may actually have the

lower altitude grid cell. You can use MPE and misbin to force HPE to use a specific radar in areas of beam blockage.

c. Decide if the default setting of misbin token turned off is right for you:
    i. To determine if precipitation estimates are affected by terrain or the Hybrid Scan:

        1) Review Hybrid Scan info for your primary radar. Talk to your radar focal point and maybe the ROC .
        2) Are there areas where the Hybrid Scan uses 1.5º or 2.4º in your HSA?
            a. These areas may produce poor precipitation estimates.
            b. Check adjacent radars…Can they look into your beam blocked areas at a lower elevation angle and lower altitude?
        3) Look at RADCLIM output.
            a. If it shows uniform coverage except for range degradation beyond about 100 nm, then you're OK.
            b. Wedges of degraded data that indicate blockage or overshooting due to hybrid scan are suspect.
        4) In MPE Editor, view Radar Coverage Fields (under the Basefields menu).
            a. Radar Coverage Fields show the radar that will be used if the misbin token is turned on.
            b. Do the radar coverages match your impression of which radar has the best coverage?

    ii. HPE Default setting is OK if:
        1) Your terrain is flat, or
        2) You know the 0.5º slice is used for precip estimates over your entire radar domain.

d. (Optional) Turn on misbin token if your HSA is in complex terrain & hybrid scan uses elevations above 0.5º.
    i. Add the following line (or modify existing setting) within the *Hydro Apps->Hydro->Apps_defaults* from the localization perspective:
        1) hpe_load_misbin : ON

e. If misbin token is left off, be extremely wary of using HPE FFMP in areas of beam blockage.
    i. Data choice will be based on altitude of the 0.5º elevation and not the actual lowest tilt of the data in the hybrid scan.

f. If misbin token is turned on, check the Radar Coverage Field in MPE Editor.
    i. Identify missing data areas.
        1) Missing data may degrade FFMP if basins are partially missing.
        2) Entire basin may be set to missing if no radar data is available.
    ii. Identify areas where adjacent radars overlap the same area.
        1) Misbin = 1 for both radars
            a. 0.5º rule applies for radar selection.
            b. Make sure selected radar is using data from the lowest altitude angle available.
                1. Closest radar may be using 1.5º or 2.4º elevation in Hybrid scan…0.5º rule strikes again!
                2. Best data may be from 0.5º slice from radar farther away.

iii. Work with your RFC to make changes to misbin files to eliminate overlaps and use best radar data.
1) Misbin files exist for each radar: misbin.aaa, misbin.bbb, misbin.ccc, etc.
2) Misbin files reside in:
/awips/hydroapps/precip_proc/local/data/app/mpe/misbin