Appendix I
PMP Version Log: Changes to Storm Database and Adjustment Factors

Version 1.0 – (7/7/2021)

- Created 5 Transposition zones. Added transposition constraints to all storms
- Initial run; included GTF upper limit of 1.50 and lower limit 0.50
- MTF was set to 1 to remove from total adjustment factor.
- Previous transposition limits from the adjacent Pennsylvania, Virginia, and several site-specific studies in the region were utilized as a starting point when storms were common to these other studies.
- Initial GTF calculations for sensitivities. This provides explicit data from which to make decisions on transposition limits and/or support decisions made

<u>General Storms</u>

- SPAS 1047_1 - Tamaqua, PA (1,2,3,4)
- SPAS 1195_2 - Paddy Mountain, WV (3,4,5)
- SPAS 1201_1 - Halifax, VT (2,3,4,5)
- SPAS 1312A_2 - Rosman, NC (3,4,5)
- SPAS 1339_1 - Wellsboro, PA (1,2,3,4)
- SPAS 1339_2 - Wellsboro, PA (1,2,3,4)
- SPAS 1339_3 - Wellsboro, PA (1,2,3,4)
- SPAS 1346_1 – Blue Ridge Divide, NC (3,4,5)
- SPAS 1350_1 – New Bern, NC (1,2)
- SPAS 1362_2 – Robbinsville, VA (3,4,5)
- SPAS 1380_1 – Burton Dam, GA (2,3,4,5)
- SPAS 1514_1 – Vade Mecum, NC (1,2)
- SPAS 1533_1 – Montebello, VA (2,3,4,5)
- SPAS 1566_1 – Paterson, NJ (1,2)

<u>Hybrid Storms</u>

- SPAS 1629_1 – Hector, NY – G/L (3,4,5)
- SPAS 1340_1 – Big Meadows, VA – G/T (3,4)

Local Storms

- SPAS 1017_1 – Sparta, NJ (2,3,4)
- SPAS 1040_1 – Tabernacle, NJ (1,2)
- SPAS 1049_1 – Delaware County, NY (2,3,4)
- SPAS 1343_1 – Johnson City, TN (5)
- SPAS 1344_1 – Simpson, KY (5)
- SPAS 1362_1 – Coeburn, VA (5)
- SPAS 1402_1 – Little Barren, TN (5)
- SPAS 1402_2 – Rosedale, TN (5)
- SPAS 1406_1 – Rapidan, VA (3,4)
- SPAS 1415_1 – Islip, NY (1,2)
- SPAS 1489_1 – Jewell, MD (1,2)
- SPAS 1534_1 – Ewan, NJ (1,2)
- SPAS 1536_1 – Glenville, WV (5)
- SPAS 1546_1 – Little River, VA (5)
- SPAS 1547_1 – Catskill, NY (1,2,3,4)
- SPAS 1548_1 – Redbank, PA (5)
- SPAS 1550_1 – Johnstown, PA (5)
- SPAS 1681_1 – Smethport, PA (5)
- SPAS 1681_2 – Smethport, PA (5)
- SPAS 1681_3 – Smethport, PA (5)
- SPAS 1681_4 – Smethport, PA (5)
- SPAS 1681_5 – Smethport, PA (5)
- SPAS 1681_6 – Smethport, PA (5)
- SPAS 1700_1 – Ellicott City, MD (1,2)

Tropical Storms

- SPAS 1224_1 – Maplecrest, NY (3,4)
- SPAS 1243_1 – Westfield, MA (1,2,3,4)
- 0SPAS 1275_1 – Montgomery Dam, PA (5)
- SPAS 1275_2 – Montgomery Dam, PA (1,2,3,4)
- SPAS 1276_1 – Wellsville, NY (5)
- SPAS 1276_2 – Zerbe, PA (1,2,3,4)
- SPAS 1298_1 – Harrisburg, PA (1,2,3,4)
- SPAS 1299_1 – Alta Pass, NC (3,4,5)
- SPAS 1299_2 – Kingstree, NC (1,2)

- SPAS 1312B_2 – Rosman, NC (3,4,5)
- SPAS 1341_1 – Buck, CT (1,2)
- SPAS 1342_1 – Mt Mitchell, NC (3,4,5)
- SPAS 1373_1 – Antreville, SC (2,3,4)
- SPAS 1490_1 – Easton, MD (1,2)
- SPAS 1491_1 – Tyro, VA (2,3,4)
- SPAS 1516_1 – Glenville, GA (1,2,3,4)
- SPAS 1516_2 – Glenville, GA (2,3,4)
- SPAS 1517_2 – Moncure, NC (2,3,4)
- SPAS 1517_3 – Settle, NC (1,2)
- SPAS 1526_1 – Raleigh, NC (1,2)
- SPAS 1535_2 – Upper Sherando, VA (3,4)
- SPAS 1551_1 – Richmond, VA (1,2)
- SPAS 1552_1 – Southport, NC (1)
- SPAS 1552_2 – Yorktown, VA (1,2)
- SPAS 1552_3 – Pompton Lake, NJ (1,2)
- SPAS 1552_4 – Cairo, NY (1,2,3,4)
- SPAS 1565_1 – Paterson, NJ (1,2)
- SPAS 1567_1 – Tuckerton, NJ (1,2)
- SPAS 1628_1 – Jefferson, OH (5)
- SPAS 1630_1 – Bolton, ONT (5)
- SPAS 1669_1 – Evergreen, NC (1,2)
- SPAS 1679_1 – Slide Mountain, NY (3,4)
- SPAS 1680_1 – West Shokan, NY (3,4)
- SPAS 1720_1 – Wrightsville Beach, NC (1)

Version 2.0 – (2/23/2022)

- Added SPAS 1818_1 (Atlantic City, NJ) as a local storm transposable to zones 1 &2
- Added SPAS 1564_1 (Mount Pleasant, SC) as a general storm transposable to zones 1 & 2
- Updated SPAS 1275_2 from a tropical storm to a hybrid general/tropical storm
- Updated SPAS 1298_1 (Harrisburg, PA) from tropical to general storm
- Updated SPAS 1680_1 (West Shokan, NY) from tropical to general storm
- Updated SPAS 1299_1 (Alta Pass, NC) updated maximization to use SST instead of dew point. Removed from zone 5
- SPAS 1547_1 (Catskill, NY) – Capped GTF at 1.2 to match what was done in the Pennsylvania statewide study

- SPAS 1047_1 (Tamaqua, PA) – Updated storm rep dew point value from 71° to 70.5° to match what was done in the Blenheim-Gilboa study. This changed the IPMF from 1.28 to 1.31.
- SPAS 1681 (Smethport, PA) – In v1 this storm was limited to zone 5 west of the Appalachian crest. It was creating an abnormally large break in the values across the crest heading east. The storm was allowed across the crest going east in a similar way as was done in the Pennsylvania study. A series of ten one mile buffers were created starting just before the crest and then going east each 1 mile buffer reduces the GTF factor by 5% until the storm is reduced to no longer controlling.
- SPAS 1344_1 (Simpson, KY) – The same transposition and GTF reduction factors that were applied to Smethport were applied to this storm as well.
- SPAS 1720_1 (Wrightsville Beach, NC) – Previously this storm was only allowed to go to zone 1. It was significantly larger than surrounding storms when controlling large breaks in PMP values at the boundaries between zones 1 & 2. Updated transposition limits allowed this storm to go to all of zones 1 & 2 but for every two miles the GTF values are reduced by 2.5 percent outside of zone 1.

In areas where SPAS 1681_1 (Smethport, PA) controls.

- The climatological max dew point value used in Pennsylvania was 78°. The dew point datasets were updated just after the PA study resulting in an increased max dew point value of 80.5° for Maryland. This increased the IPMF from 1.03 in PA to 1.15 in Maryland. Furthermore, because the Pennsylvania statewide PMP domain was spread across 2 different NOAA Atlas 14 datasets with non-contiguous values, these datasets had to be merged. This resulted in a blending of the NOAA Atlas values along the seam. The Smethport storm center occurred in this area and for the Pennsylvania study the 6-hour NOAA 14 blended storm center value was 3.90. Maryland did not have this issue as all the Maryland PMP domain is in one NOAA atlas 14 volume. The un-adjusted storm center values for Smethport using NOAA Atlas 14 volume 2 is 3.79. This difference slightly increases the GTF values for the Maryland study.

Version 3.0 – (5/3/2022)

Used v2 with these changes

- SPAS 1339_1 (Wellsboro, PA) – Allowed to go to zone 5. Updated transposition from 1,2,3,4 to 1,2,3,4,5.
- SPAS 1681 (Smethport, PA) - Updated the climatological max dew point value to what was used in the Pennsylvania Study. This decreased the IPMF from 1.15 in PA to 1.03.
- SPAS 1628_1 (Smethport, PA) - Updated the climatological max dew point value to what was used in the Pennsylvania Study. This decreased the IPMF from 1.25 in PA to 1.16.

Version 3.a – (5/5/2022)

Used v3 with these changes

- Removed SPAS 1339_1 from zone 5 and allowed SPAS 1339_2 and 1339_3 to go to zone 5.

Version 4 – (5/9/2022)

Used v3a with these changes

- Reduced the amount that Smethport is reduced every mile from 5% to 3%.

Version 5 – (6/1/2022)

Used v4 with these changes

- Smethport was allowed to go out past the ten-mile buffers. The 30% reduction in GTF values used in zone 10 was carried throughout the rest of zones 3 & 4.

Version 6 – (11/15/2022)

Added Temporal Distributions for controlling storms.

- Added GTF adjustments from v4 back into Smethport storm to only allow to go 10 miles east of the Appalachian crest.

Version 7 – (1/11/2024)

- Updated IPMF for SPAS 1536, 1343, and added SPAS 1944.