

RAH NWP Reference (updated 2015/12/13)

Modeling Systems	Initial Time	Forecast Hours	Core	Horizontal Resolution	Vertical Levels	Output Frequency	Convection	Microphysics	PBL	Land Surface	Radiation (SW/LW)	Initial Conditions	Boundary Conditions	Available in AWIPS
RAP	Hourly	18	WRF-ARW	13 km	50	hourly	Grell-G3	Thompson 2010	MYJ	RUC-Smirnova	Goddard/RRTM	GS1	GFS	Yes
NAM NMM-B	00/06/12/18	84	WRF-NMM-B	12 km	60	3 hourly	BMJ	Ferrier	MYJ	Noah	Clear sky radiative transfer <sup>1</sup>	NDAS	GFS	Yes
NAM NMM-B nest	00/06/12/18	60	WRF-NMM-B	4 km	60	3 hourly	BMJ ("light touch")	Ferrier	MYJ	Noah	Clear sky radiative transfer <sup>1</sup>	NDAS	NAM NMM-B	No
GFS	00/06/12/18	0-240		13 km	64	3 hourly	Updated SAS	Zhao and Carr	EDMF PBL/TKE	Noah	RRTM/McICA	GDAS		Yes
GFS	00/06/12/18	240-384		35 km	64	12 hourly	Updated SAS	Zhao and Carr	EDMF PBL/TKE	Noah	RRTM/McICA	GDAS		Yes
GDPS <sup>2</sup> 4.0.0 (CMC)	00/12	240		25 km	79	6 hourly	KF/ Kuo-transient <sup>4</sup>	Sundqvist	Moist TKE	ISBA	Fouquart-Bonnel/Garand	4DENVAR		Yes
ECMWF	00/12	240		16 km	137	6 hourly	Mass Flux (Tiedtke)	Tiedtke	First order, non-loc	H-TESSEL	RRTM	4DVAR		Yes
<b>High Resolution Modeling Systems</b>														
SPC WRF	00/12	36	NMM	4 km	35	hourly	Explicit	Ferrier <sup>5</sup>	MYJ	Noah	GFSL/GFDL	12 km NAM	12 km NAM <sup>6</sup>	No
NCEP HiresW, CONUS domain <sup>3</sup>	00/12	48	WRF-ARW	4.2 km	40	3 hourly	Explicit	WSM6	YSU	Noah	Duddhia/RRTM	RAP	GFS	Yes
NCEP HiresW, Alaska domain <sup>3</sup>	06/18	48	WRF-ARW	3.5 km	40	3 hourly	Explicit	WSM6	YSU	Noah	Duddhia/RRTM	GFS	GFS	Yes
NCEP HiresW, Hawaii domains <sup>3</sup>	00/12	48	WRF-ARW	3.8 km	40	3 hourly	Explicit	WSM6	YSU	Noah	Duddhia/RRTM	GFS	GFS	Yes
NCEP HiresW, Guam domain <sup>3</sup>	00/12	48	WRF-ARW	3.8 km	40	3 hourly	Explicit	WSM6	YSU	Noah	Duddhia/RRTM	GFS	GFS	Yes
NCEP HiresW, Puerto Rico domain <sup>3</sup>	06/18	48	WRF-ARW	3.8 km	40	3 hourly	Explicit	WSM6	YSU	Noah	Duddhia/RRTM	GFS	GFS	Yes
NCEP HiresW, CONUS domain <sup>3</sup>	00/12	48	NMM-B	3.6 km	40	3 hourly	Explicit	Ferrier <sup>5</sup>	MYJ	Noah	RRTM	RAP	GFS	Yes
NCEP HiresW, Alaska domain <sup>3</sup>	06/18	48	NMM-B	3.0 km	40	3 hourly	Explicit	Ferrier <sup>5</sup>	MYJ	Noah	RRTM	GFS	GFS	Yes
NCEP HiresW, Hawaii domain <sup>3</sup>	00/12	48	NMM-B	3.0 km	40	3 hourly	Explicit	Ferrier <sup>5</sup>	MYJ	Noah	RRTM	GFS	GFS	Yes
NCEP HiresW, Guam domain <sup>3</sup>	00/12	48	NMM-B	3.0 km	40	3 hourly	BMJ	Ferrier <sup>5</sup>	MYJ	Noah	RRTM	GFS	GFS	Yes
NCEP HiresW, Puerto Rico domain <sup>3</sup>	06/18	48	NMM-B	3.0 km	40	3 hourly	BMJ	Ferrier <sup>5</sup>	MYJ	Noah	RRTM	GFS	GFS	Yes
NSSL 4km WRF	00	36	ARW	4 km	35	hourly	Explicit	WSM6	MYJ	Noah	Duddhia/RRTM	40 km NAM	40 km NAM	No
High Resolution Rapid Refresh	Hourly	15	ARW	3 km	50	hourly	Explicit	Thompson/NCAR	MYJ	RUC-Smirnova	Duddhia/RRTM	13km RUC + radar <sup>7</sup>	13km RUC + radar <sup>8</sup>	Yes <sup>9</sup>
WFO RAH 4km WRF	00/06/12/18	24	ARW	4 km	45	hourly	Explicit	WSM6	YSU	Noah	GFDL	12 km NAM	12 km NAM	Yes
NC Climate Office WRF	00/12	72	ARW	4 km	41	hourly	Explicit	WSM6	MYnn2.5	Noah	Duddhia/RRTM	GFS	GFS	No
<b>NAEFS Modeling System</b>														
NAEFS: CEFS (GEFS 4.0.0) <sup>10</sup>	00/12	384		50 km	74	every 12 hours	KF/Kuo	Sundqvist		ISBA	Fouquart-Bonnel/Garand	ENKF		No
NAEFS: GEFS <sup>10</sup>	00/06/12/18	0-192		33 km	64	every 6 hours	Updated SAS	Zhao and Carr	Pan-Mahrt	Noah	RRTM/RRTM	GFS 3DVar EnKF		No
NAEFS: GEFS <sup>10</sup>	00/06/12/18	192-384		55 km	64	every 6 hours	Updated SAS	Zhao and Carr	Pan-Mahrt	Noah	RRTM/RRTM	GFS 3DVar EnKF		No
<b>SREF Modeling System (October 2015 update, version 7)</b>														
nmmb_ct	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ old shallow	Ferrier hires	MYJ	Noah	RRTM	NDAS <sup>11</sup>	GFS	No
nmmb_n1	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	SAS	WSM6	GFS	Noah	GFDL	NDAS <sup>11</sup>	GEFS2	No
nmmb_p1	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ new shallow	Ferrier hires	MYJ	Noah	RRTM	NDAS <sup>11</sup>	GEFS1	No
nmmb_n2	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	SAS	Ferrier hires	GFS	Noah	GFDL	NDAS <sup>11</sup>	GEFS4	No
nmmb_p2	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ old shallow	WSM6	MYJ	Noah	RRTM	NDAS <sup>11</sup>	GEFS3	No
nmmb_n3	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	SAS	Ferrier hires	GFS	Noah	GFDL	GFS <sup>11</sup>	GEFS6	No
nmmb_p3	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ new shallow	WSM6	MYJ	Noah	RRTM	GFS <sup>11</sup>	GEFS5	No
nmmb_n4	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	SAS	WSM6	GFS	Noah	RRTM	GFS <sup>11</sup>	GEFS8	No
nmmb_p4	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ old shallow	Ferrier hires	MYJ	Noah	GFDL	GFS <sup>11</sup>	GEFS7	No
nmmb_n5	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	SAS	WSM6	GFS	Noah	RRTM	RAP <sup>11</sup>	GEFS10	No
nmmb_p5	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ new shallow	Ferrier hires	MYJ	Noah	RRTM	RAP <sup>11</sup>	GEFS9	No
nmmb_n6	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	SAS	Ferrier hires	GFS	Noah	GFDL	RAP <sup>11</sup>	GEFS12	No
nmmb_p6	03/09/15/21	87	NMMB	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ old shallow	WSM6	MYJ	Noah	GFDL	RAP <sup>11</sup>	GEFS11	No
arw_ct	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	KF	WSM6	YSU	Noah	RRTMG	RAP <sup>11</sup>	GFS	No
arw_n1	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ	Ferrier	MYJ	Noah	GFDL	RAP <sup>11</sup>	GEFS14	No
arw_p1	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	Grell	Thompson	MYNN	Noah	RRTM/GSFC	RAP <sup>11</sup>	GEFS13	No
arw_n2	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	KF	Ferrier	YSU	Noah	GFDL	RAP <sup>11</sup>	GEFS16	No
arw_p2	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ	Thompson	MYJ	Noah	RRTMG	RAP <sup>11</sup>	GEFS15	No
arw_n3	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	Grell	WSM6	MYNN	Noah	RRTMG	GFS <sup>11</sup>	GEFS18	No
arw_p3	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	KF	Thompson	YSU	Noah	RRTM/GSFC	GFS <sup>11</sup>	GEFS17	No
arw_n4	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ	WSM6	MYJ	Noah	RRTMG	GFS <sup>11</sup>	GEFS20	No
arw_p4	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	KF	Ferrier	YSU	Noah	GFDL	GFS <sup>11</sup>	GEFS19	No
arw_n5	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	Grell	Ferrier	MYNN	Noah	GFDL	NDAS <sup>11</sup>	GEFS2	No
arw_p5	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	KF	WSM6	YSU	Noah	RRTMG	NDAS <sup>11</sup>	GEFS1	No
arw_n6	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	BMJ	Thompson	MYJ	Noah	RRTM/GSFC	NDAS <sup>11</sup>	GEFS4	No
arw_p6	03/09/15/21	87	ARW	16 km	40	hourly (0-39), 3 hourly (39-87)	Grell	Thompson	MYNN	Noah	RRTMG	NDAS <sup>11</sup>	GEFS3	No
<b>Footnotes</b>														
1 - Clear sky radiative transfer (Lacis and Hansen)														
2 - Boundary conditions updated hourly														
3 - Global Deterministic Prediction System (CMC)														
4 - Kuo-transient (Shallow) and Kain-Fritsch (Deep)														
5 - Microphysics are tweaked to allow for larger raindrops and thus more intense simulated radar signals														
6 - As of the 2014 upgrade, there is no longer pre-emption due to hurricane model runs														
7 - HRRR initial conditions are from the 13 km ESRL-backup-RUC using the so-called RUC-DFI file (native grid, after application of digital filter initialization (DFI) using temperature tendencies from the latest 3-d radar reflectivity data).														