NWS FORM E-5 U. S. DEPARTMENT OF COMMERCE |HSA OFFICE: RNK
NOAA, NATIONAL WEATHER SERVICE BLACKSBURG, VA

MONTHLY REPORT OF RIVER/FLOOD CONDITIONS

TO: NATIONAL WEATHER SERVICE
HYDROMETEOROLOGICAL INFO CENTER
1325 EAST-WEST HIGHWAY
SILVER SPRING, MD 20910

|**REPORT FOR:**
| **January 2010**

| **Date: 2/12/10**

|**Signature:** Peter Corrigan

Summary: The strong El Niño continued to influence weather conditions across the region with an active storm pattern during January 2010. Several major storms affected the Blacksburg Hydrologic Service Area (HSA), one with heavy rain and another with heavy snow. Widespread river flooding and some flash flooding occurred January 24-25 with the rainfall event. Mean January precipitation was 4.91 inches versus the long-term average (1971-2000 normal) for this month of 3.65 inches (74 of the 75 cooperative stations reporting), or 135 percent of average. Precipitation at NWS stations ranged from a low of 2.97" at Covington Filter Plant (CFPV2) in Alleghany County, VA to a high of 8.05" at Woolwine 4S (WLWV2) in Patrick County, VA. Monthly average temperatures were below normal by about 1 to 4 degrees ranging from a low of 27.9^{o}F at Blacksburg (-3.0^{o}) to a high of 35.8^{o}F at Danville (-0.8^{o}).

January began with a prolonged period of dry but very cold weather. While temperatures were not extreme they were consistently cold. In the western mountains it failed to rise above freezing for most of the first 2 weeks of the month, and even piedmont locations were mostly in the 30s and low 40s for daytime highs. The extended cold led to the formation of significant river ice on portions of the New and Greenbrier rivers, which hadn't been seen for at least several years in these areas. Substantially warmer temperatures from the January 14-16 were observed as highs reached the low to mid 50s in the west and low 60s east. This helped weaken the fairly extensive river ice in the western mountains ahead of the next storm system. That system arrived in the form of an upper level low lifting from the Gulf coast to the mid-Atlantic coast January 16-18, with surface low pressure tracking just south of the HSA. This storm produced moderate to heavy rainfall especially in the southern and eastern parts of the area, amounts ranging from 0.50 inches in the far north to 2.5 inches in parts of the Dan and Yadkin river basins. Top 48-hour totals from gaging stations included Fancy Gap IFLOWS (FYGV2) 2.52" Jones Creek IFLOWS (JOEV2) 2.32", Laurel Springs RAWS (LRLN7) 2.29", W. Kerr Scott Reservoir COOP (WLKN7) 2.22" and Mikes Knob IFLOWS (MKTW2) 2.20". Numerous rivers responded with rises to near flood stage from the runoff in this event. However, the rain and warmer temperatures contributed to ice jam flooding along the New River near Galax as ice thicknesses of 10 to 12 inches jammed up at a sharp bend in the river (and possibly other locations) and caused the river to rise around 10 feet at the GAXV2 gage location to moderate flood stage (see E3 report at bottom). Fortunately, the jam was fairly short-lived although the tremendous flow of ice down the river caused damage to the flash boards on the dam and the potential for uncontrolled releases at Buck Dam power station for several days.

A Condition ‘C’ non-emergency EAP was declared by dam owners American Electric Power (AEP) due to the releases and a Flood Watch was issued by the NWS which was carried for several days to alert the public of possible high water on the New River.

This storm was followed just a few days later by moderate rains across much of the area as low pressure moved through the Tennessee Valley to the coast. This system produced generally 0.25 to 1.0 inch of rain and included some wet snow at the end. A few locations mainly in the piedmont and foothills received over an inch including Jones Creek IFLOWS (JOEV2) 1.52”, Keysville COOP (KEYV2) 1.45”, Daleville IFLOWS (DAEV2) 1.24”, Tinker Creek S. IFLOWS (TKSV2) 1.20 and Rangeley Branch IFLOWS (RAGV2) 1.04”. Although no flooding occurred, this set the stage for more significant runoff problems as the next storm pushed slowly across the area January 24-25. A Flood Watch was issued on the 23rd as 2 to 4 inches of rain were forecast of across most of the area. The upper level low was centered over the central U.S. and provided deep southerly flow as a complex surface system tracked through the area with heavy rains mainly on the 24th. Figure 1 below shows 24-hour rainfall, which was heaviest across the Dan, Yadkin and upper James river basins with widespread 2 to 4 inch amounts, and isolated 5-inch totals. Table 1 shows the top 10 gage amounts from this impressive January event.

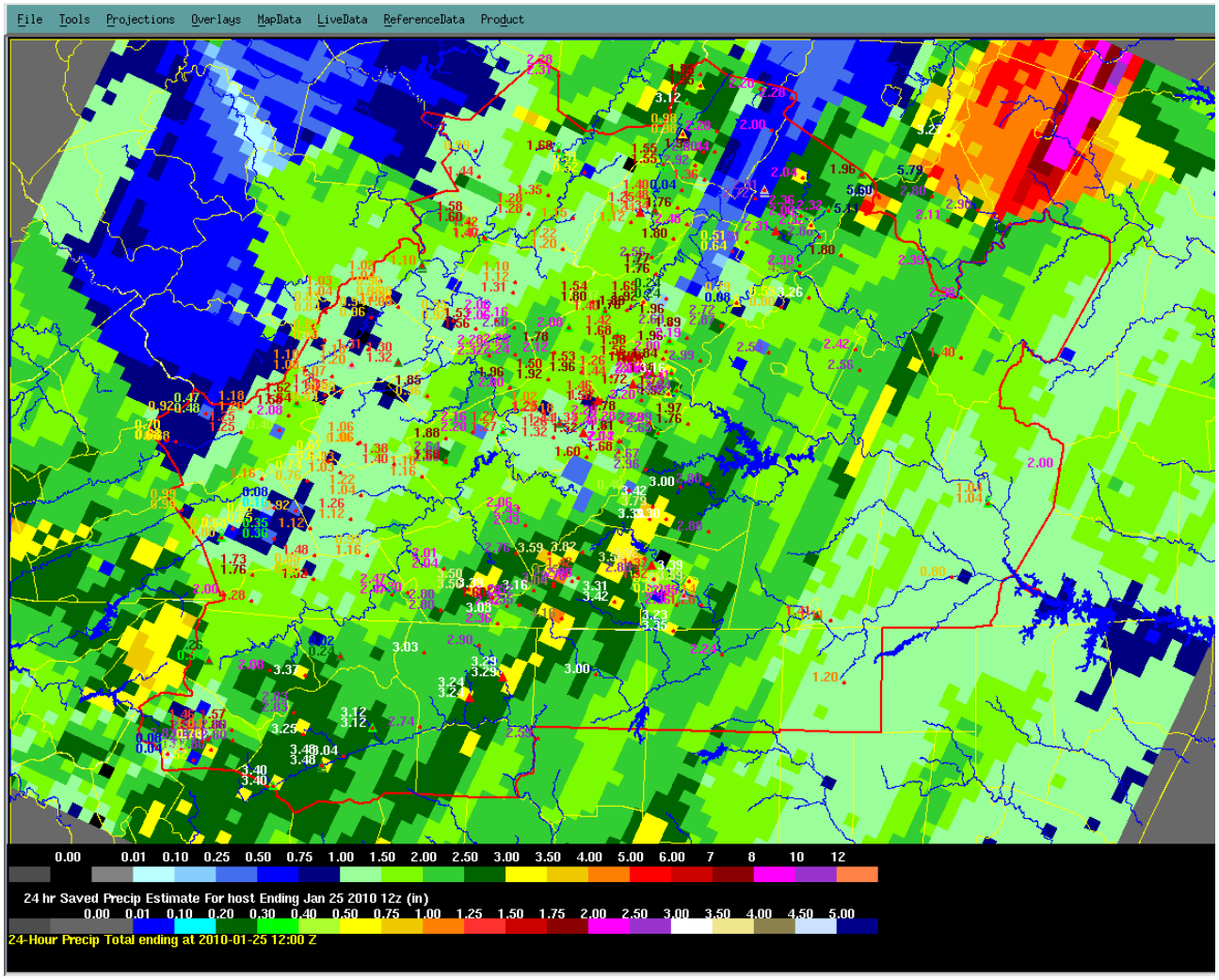

Figure 1. 24-hour basin-average MPE rainfall (with rain gage totals) 12Z, January 25, 2010

Table 1 – Top ten 24-hour Precipitation amounts: RNK HSA – valid 12Z, January 25, 2010

SHEF ID	Station	County	Type	Precipitation
BLCV2	DEVILS KNOB	NELSON	IFLOWS	5.79
MTBV2	MONTEBELLO FN	NELSON	IFLOWS	5.60
IRIV2	IRISH GAP	ROCKBRIDGE	IFLOWS	5.27
GLAV2	GLASGOW	ROCKBRIDGE	COOP	4.45
CIRV2	CIRCLE M	PATRICK	IFLOWS	4.35
PTTV2	PHILPOTT DAM	HENRY	COOP	4.24
DRYV2	DRY POND	PATRICK	IFLOWS	4.16
BUSV2	BUSTED ROCK #1	PATRICK	IFLOWS	4.08
MHCV2	MT HERMON CHURCH	HENRY	IFLOWS	3.92
WLWV2	WOOLWINE	PATRICK	CCOP	3.82

Not surprisingly there was widespread flooding in the wake of this deluge (see E-3 table below for details). Initial river forecasts had suggested that major flooding was possible for the James and Dan rivers, but later forecasts were mainly in the moderate category. The resultant flooding was very widespread, covering rivers in 3 of the 4 major basins within the HSA, the only exception being the rivers in the Tennessee basin in southwest Virginia (Clinch and Holston river basins). In terms of river flooding it was the most widespread in the HSA since September 2004 when several tropical systems transited the area. Most of the flooding on the mainstem James River was in the Minor category, but the Dan River flooding was well within the Moderate category at all three official forecast points. The lower Roanoke (below Leesville Dam) also saw Moderate category flooding at both Brookneal and Randolph. The Greenbrier River at Alderson (ALDW2) also reached the Moderate category and was less than a half-foot from reaching Major flood stage. Numerous flash flood warnings were also issued mainly during the evening of the 24th and into the early morning hours of the 25th. Mudslides, many road closures due to high water and small stream flooding were all reported across the area. In addition, high water rescues were required in Halifax County, VA and Rockingham County, NC where motorists drove into flooded roadways.

The month ended with yet another storm, this time however it was a significant snowstorm from January 29-30 which dropped from 6 to 12 inches across nearly the entire HSA. Liquid amounts ranged from about 0.5 to 1.50 inches but very cold temperature following the storm did not allow for any significant runoff from this event.

The wet pattern possibly induced by the strong El Niño that began in November has resulted in the wettest 3-month November-January pattern on record at 4 of the 5 climate observing sites in the HSA (see table below). The Oceanic Niño Index as computed by the Climate Prediction Center (CPC) reached +1.8 for the 3-month running average (November-January) which makes this the strongest El Niño since the 1997-1998 ENSO event.

Station	Nov-Jan Precip	Rank	Old Record	Year	Records Began
Roanoke (ROA)	20.27	1st	17.81	1948	1912
Lynchburg (LYH)	19.80	1st	17.11	1935	1893
Danville (DAN)	17.60	1st	16.88	1948	1948

Blacksburg (RNK)	15.69	1th	13.69	1972	1952

Non-Routine Hydrologic Product Summary (Jan):
Flood/Flash Flood Watches (FFARNK): 2
Flood Advisories (Urban/Small Stream - FLSRNK): 0
Flash Flood Warnings (FFWRNK): 13
Areal Flood Warnings (FLWRNK): 49
River Flood Warnings (FLWRNK - forecast points): 17

NWS FORM E-3

U.S. DEPARTMENT OF COMMERCE
NOAA, NATIONAL WEATHER SERVICE

FLOOD STAGE REPORT

HYDROLOGIC SERVICE AREA: **Blacksburg, VA (RNK)**

MONTH: **January** YEAR: **2010**

RIVER AND STATION	FLOOD STAGE (FEET)	ABOVE FLOOD STAGE		CREST		
		FROM	TO	STAGE (FEET)	DATE	TIME (UTC)
Dan River						
Danville (DVLV2)	17	1/25/10	1/27/10	23.45	1/26/10	2000
Paces (PCEV2)	20	1/26/10	1/28/10	25.64	1/27/10	1545
South Boston (SBNV2)	19	1/26/10	1/29/10	26.80	1/27/10	2242
Roanoke River						
Alta Vista (ALTV2)	18	1/25/10	1/26/10	19.68	1/26/10	1200
Brookneal (BROV2)	23	1/25/10	1/26/10	28.24	1/26/10	0300
Randolph (RNDV2)	21	1/25/10	1/29/10	26.86	1/27/10	0115
Yadkin River						
Elkin (ELKN7)	16	1/25/10	1/25/10	18.84	1/25/10	1430
James River						
Lick Run (LIRV2)	16	1/25/10	1/26/10	18.58	1/25/10	2245
Buchanan (BNNV2)	17	1/25/10	1/26/10	20.17	1/26/10	0600

Holcomb Rock (HRKV2)	22	1/25/10	1/26/10	23.78	1/26/10	0715
Bent Creek (BECV2)	16	1/26/10	1/26/10	16.85	1/26/10	1415
Scottsville (SVEV2)	20	1/25/10	1/27/10	22.13	1/26/10	0430
Bremo Bluff (BREV2)	19	1/25/10	1/27/10	29.00	1/26/10	1100
New River						
Galax (GAXV2)	9	1/17/10	1/18/10	13.29 (ice affected)	1/18/10	0100
Greenbrier River						
Alderson (ALDW2)	14	1/25/10	1/26/10	18.72	1/26/10	0600

cc:
MIC RNK
NWS HIC
NWS ER
SERFC
LMRFC
OHRFC
MARFC