

Conditional Climatology - Raleigh-Durham International Airport (RDU)

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Raleigh-Durham International Airport (RDU) Conditional Climatology

The climatology graphs presented show the percentage of time that visibility and ceiling for varying flight categories occur at RDU.

The flight categories are defined as:

MVFR GTE 1,000 to LTE 3,000ft and/or GTE 3 to LTE 5SM

IFR GTE 500 to LT 1,000ft and/or GTE 1 to LT 3SM

LIFR GTE 200 to LT 500ft and/or GTE 1/2 to LT 1SM

VLIFR LT 200ft and/or LT 1/2SM

The period of record for this review at RDU is 1973-2007.

RDU Site Information



TREE LINED HIGHWAY
APPROXIMATELY 500 FEET
NW OF ASOS SITE RUNNING
NW-SW.

RDU ASOS

RUNWAY SE OF ASOS
APPROXIMATELY 300 FEET
RUNNING NE-SW.

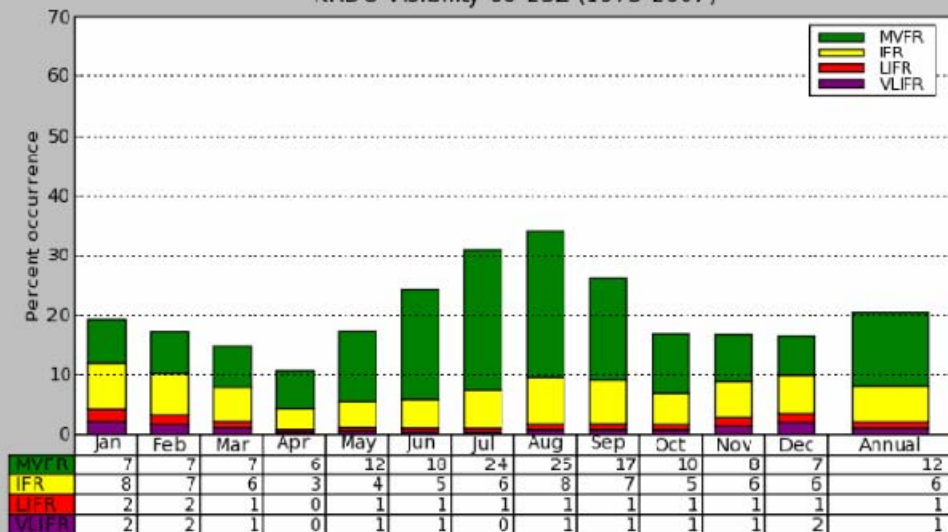
RDU Site Information



Site photos courtesy
of NCDC

RDU Annual Conditional Climatology

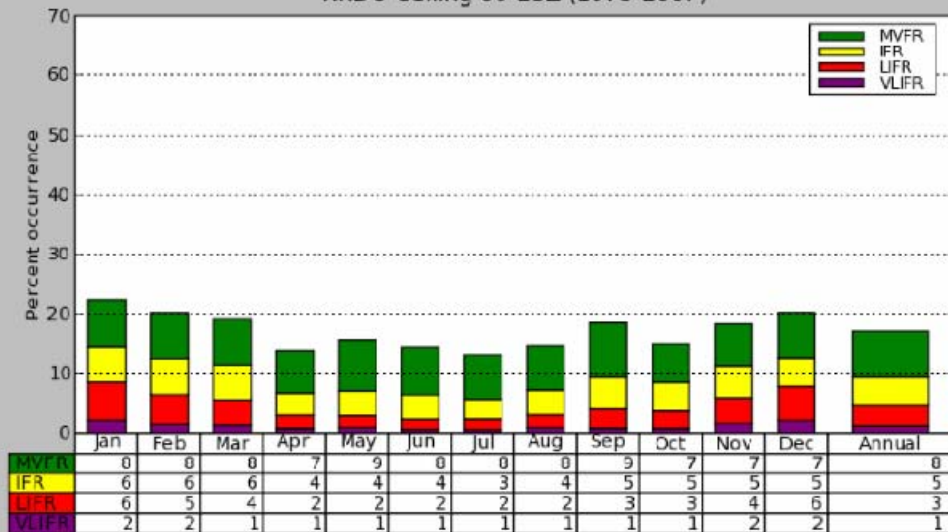
KRDU Visibility 00-23Z (1973-2007)



Annual percent of occurrence of IFR or worse visibilities is 8%

Highest probability of IFR or worse visibility in August (10%) with the least chance occurring in April (3%).

KRDU Ceiling 00-23Z (1973-2007)

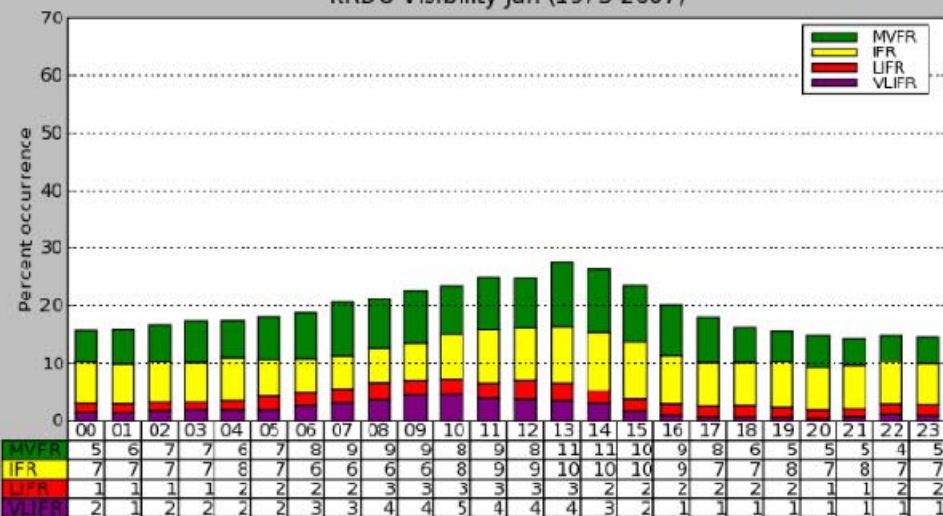


Annual percent of occurrence of IFR or worse ceilings is 9%.

The chances of IFR or worse ceilings more uniformly distributed compared to visibility. However, slightly higher probabilities are noted in the favored cold air damming months of Dec/Jan/Feb/Mar (11-14%). The percent of occurrence is lowest in April (7%), with an overall minimum from April to August.

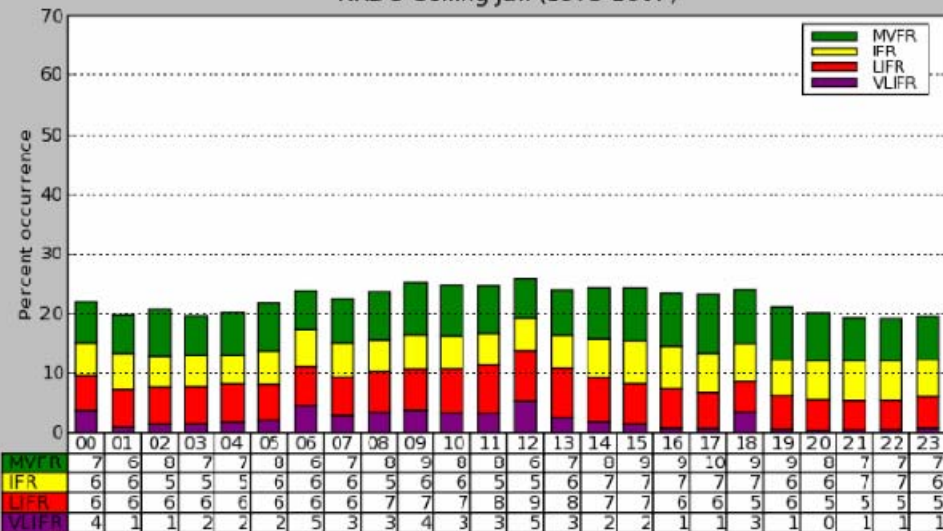
RDU January Conditional Climatology

KRDU Visibility Jan (1973-2007)



IFR or worse visibilities occur at least 10% of the time during all hours of the day, with a relative maximum occurring between 10-14z

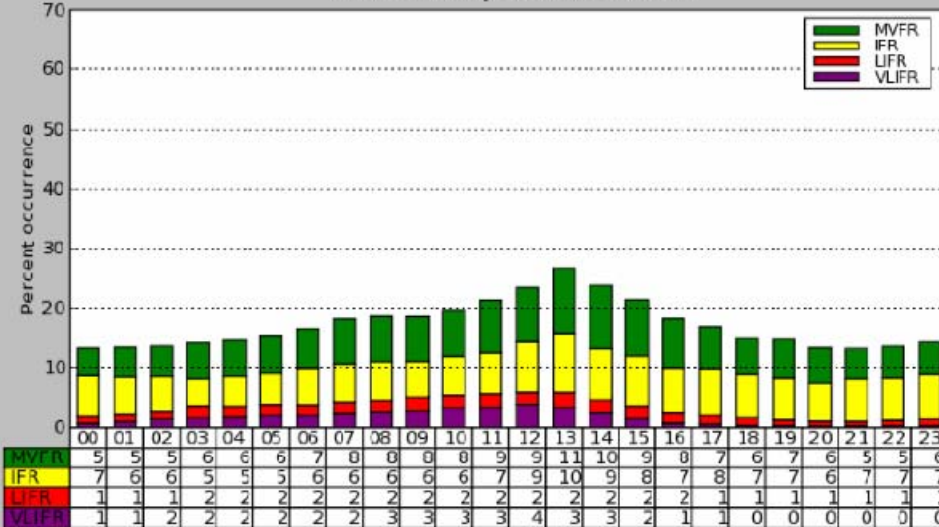
KRDU Ceiling Jan (1973-2007)



All hours of the day in January hold a 12% or higher occurrence of IFR conditions. Ceilings below 500 ft occur over 10% of the time between 08z and 13z with a noticeable peak at 12z.

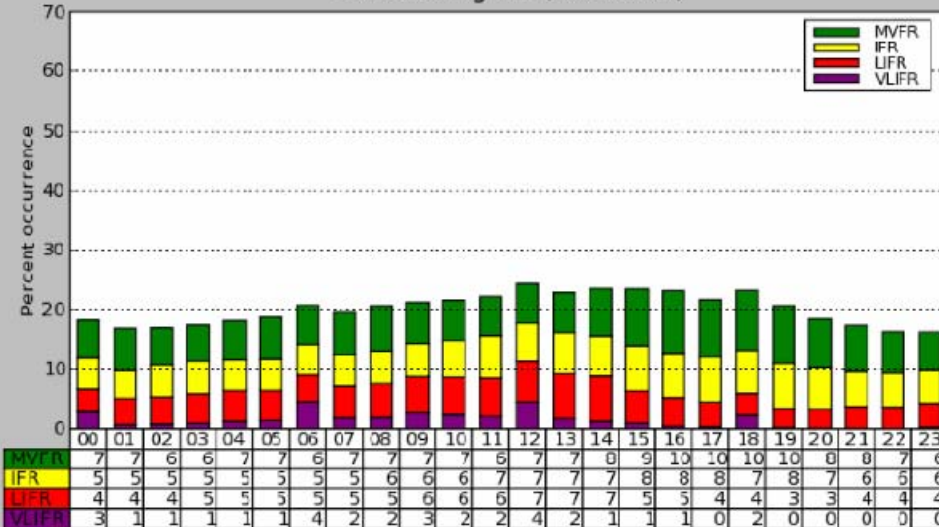
RDU February Conditional Climatology

KRDU Visibility Feb (1973-2007)



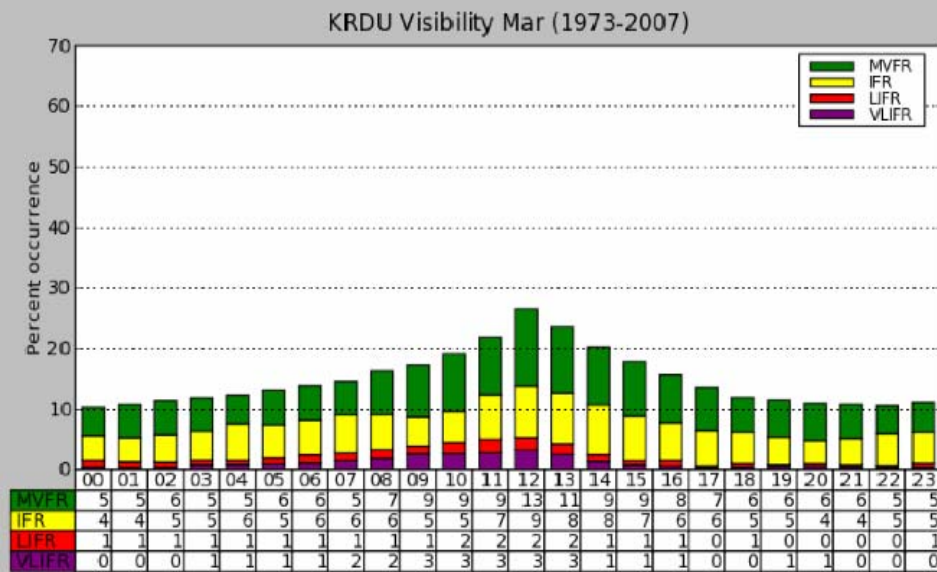
There is a 10% or greater occurrence of IFR or worse visibilities between 06z and 17z. The peak for IFR or worse conditions can be found from 12-14z.

KRDU Ceiling Feb (1973-2007)

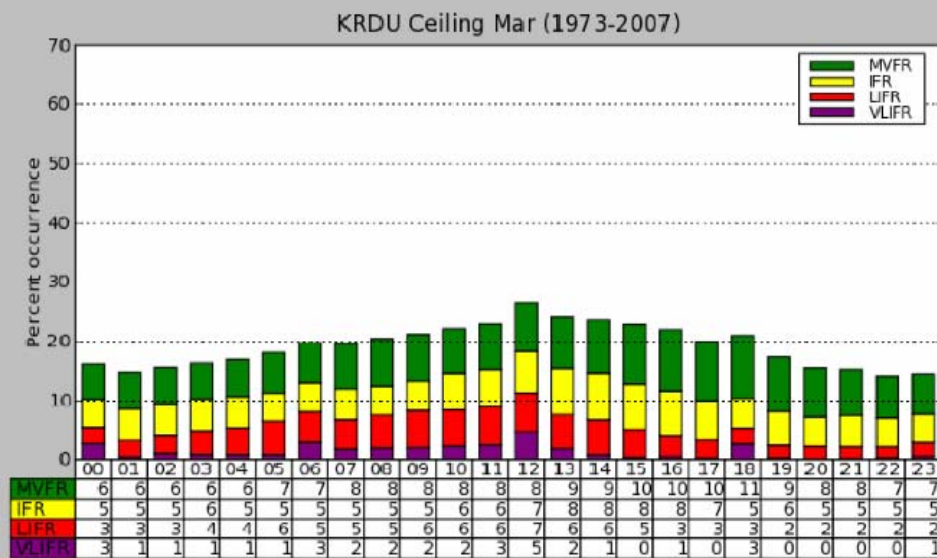


Much like January, each hour of February has a 10% occurrence rate of IFR ceilings, with a 15% or greater occurrence rate between 11-14z. The overall occurrence of LIFR conditions is not quite as high as compared to January.

RDU March Conditional Climatology



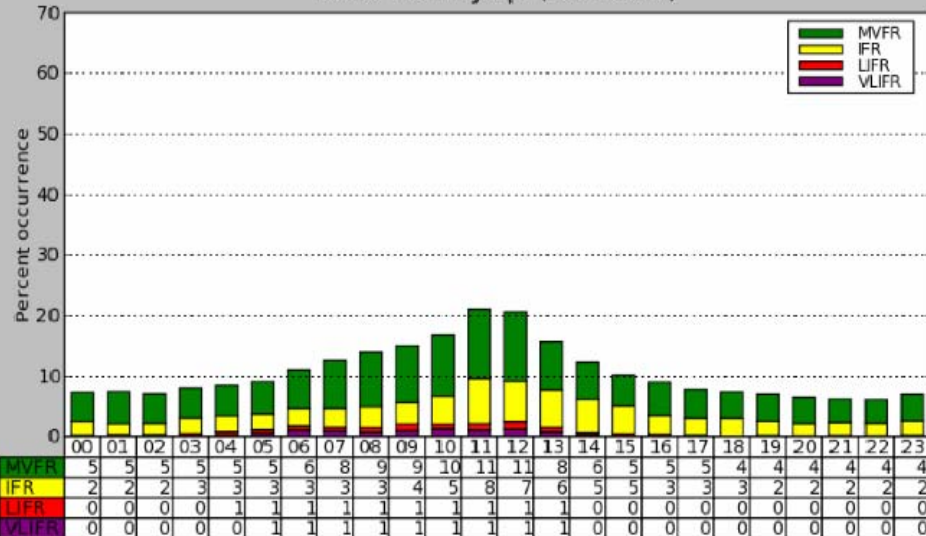
Only the hours of 11z and 12z display a 10% or greater occurrence of IFR visibility.



While most hours still show a 10% or higher IFR ceiling occurrence as Jan and Feb does, a decline is seen during the late afternoon and early evening hours. A definitive peak is seen at 12z.

RDU April Conditional Climatology

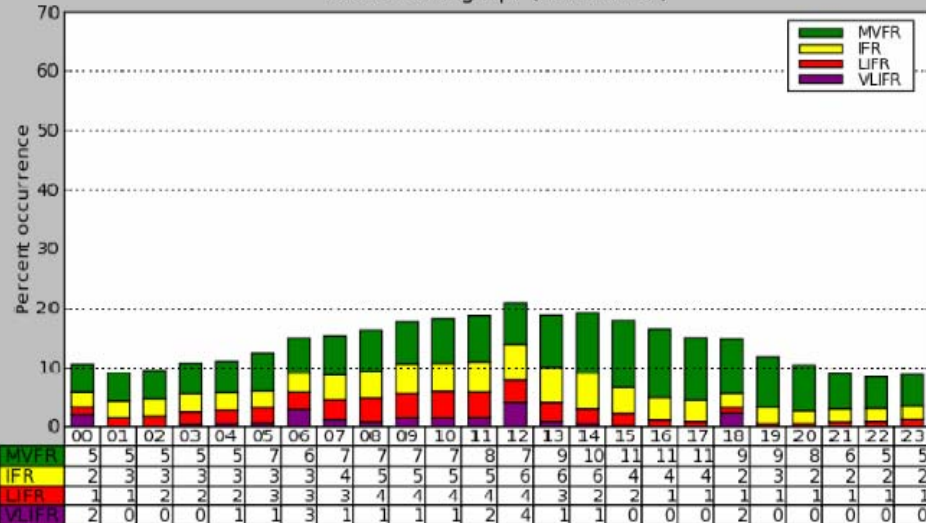
KRDU Visibility Apr (1973-2007)



Annual climatology says April has the least chance of IFR visibility conditions. This is reflected in the hourly data for the month.

Only the hour of 11z has a 10% IFR occurrence. While 16z-03z has a 3% or less occurrence rate.

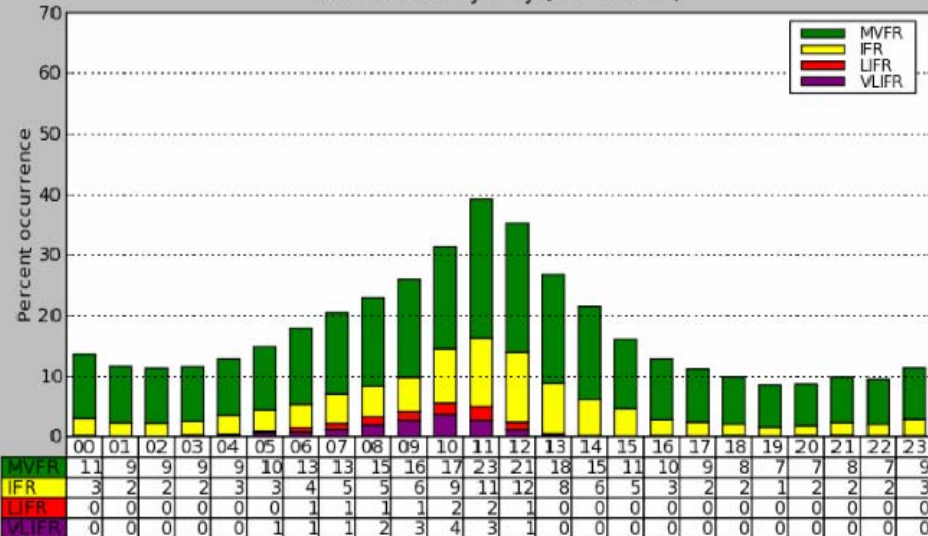
KRDU Ceiling Apr (1973-2007)



As the year progresses into the spring and cold air damming becomes less of a concern, the occurrence of IFR ceilings continue to fall with April showing the lowest occurrence rate of all the months. The predawn hours carry the best chance of IFR ceilings, with percentages tailing off in the afternoon hours.

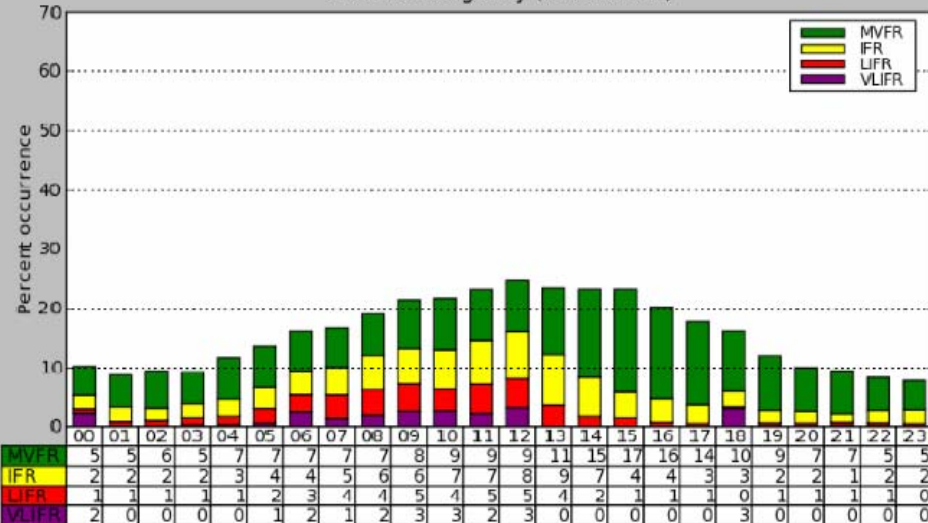
RDU May Conditional Climatology

KRDU Visibility May (1973-2007)



Diurnal instances of IFR fog begin to show up in May. The hours of 10z-12z favored, while the daytime and early evening have a 3% or less chance of occurrence.

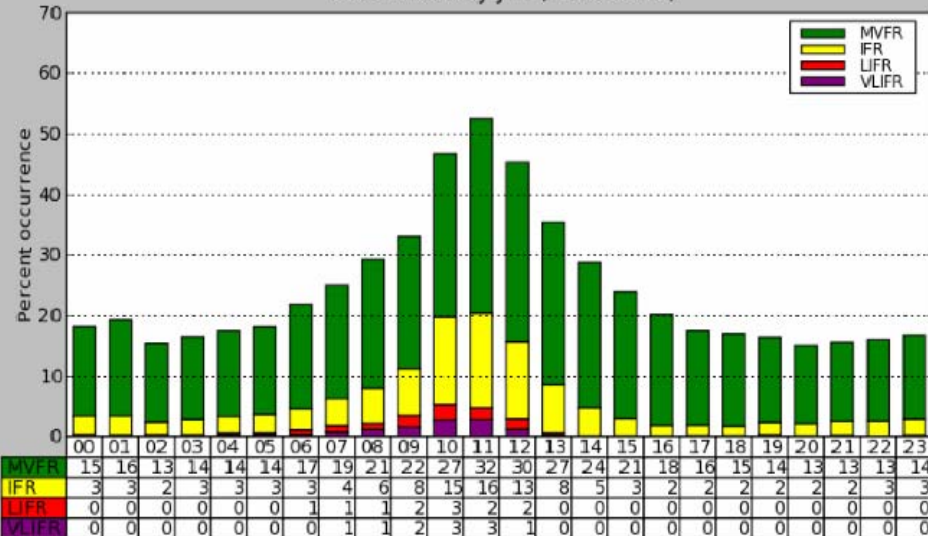
KRDU Ceiling May (1973-2007)



The peak for IFR ceilings in May occur between 10z-13z. A relative minimum appears again in the late afternoon and early evening.

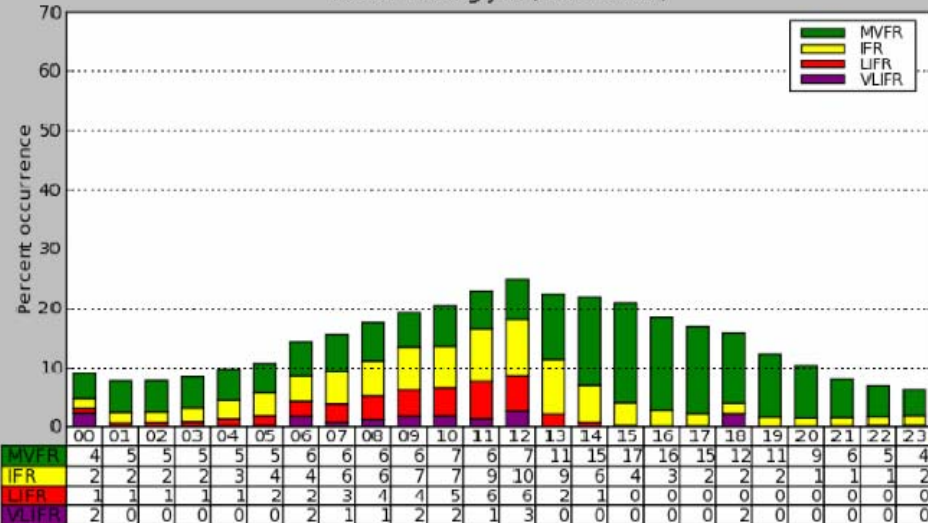
RDU June Conditional Climatology

KRDU Visibility Jun (1973-2007)



IFR fog is of a diurnal nature in June. There is a greater than 50% occurrence rate of at least MVFR fog, with a 20% occurrence of IFR conditions.

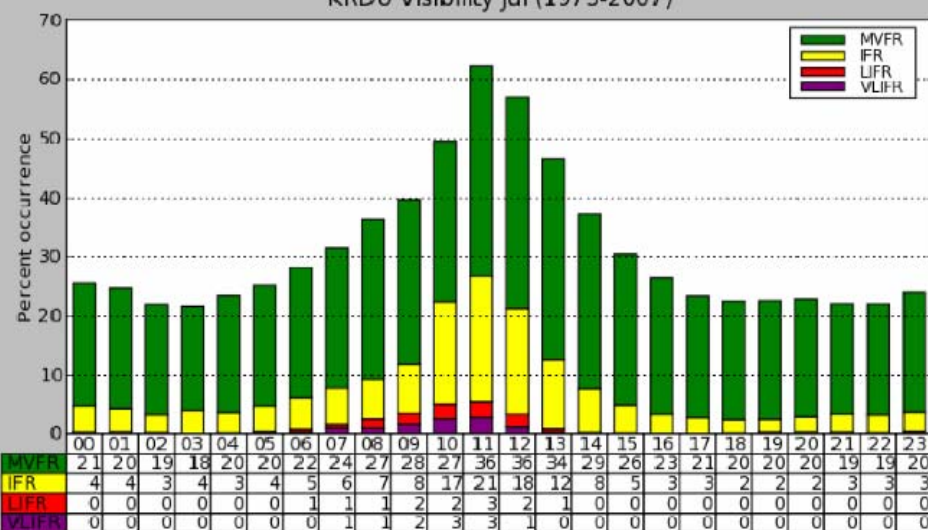
KRDU Ceiling Jun (1973-2007)



There is a noticeable peak in IFR ceilings during the hours of 09z-12z during the month of June, with only very small percentages during the daylight and early evening hours.

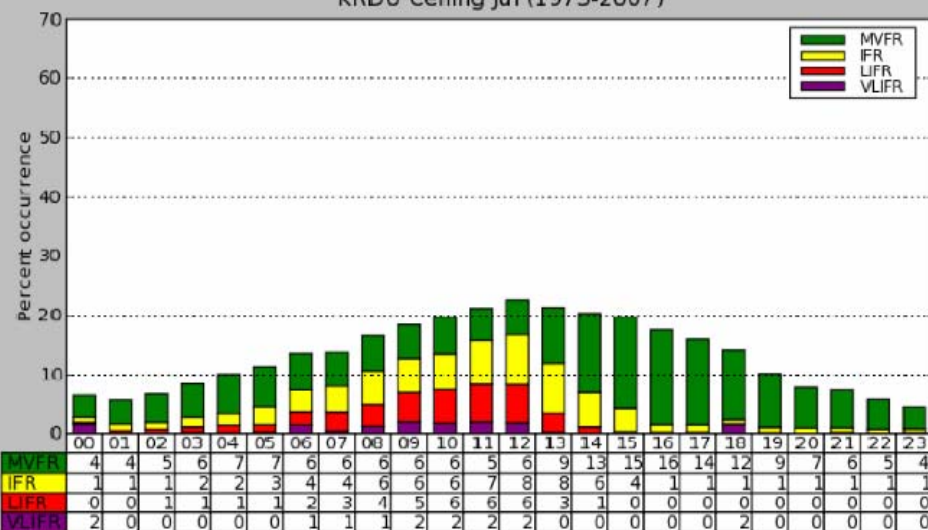
RDU July Conditional Climatology

KRDU Visibility Jul (1973-2007)



The diurnal signal for fog continues into July. By 11z, MVFR or worse conditions develop over 60% of the time, with IFR fog occurring 27% of the time.

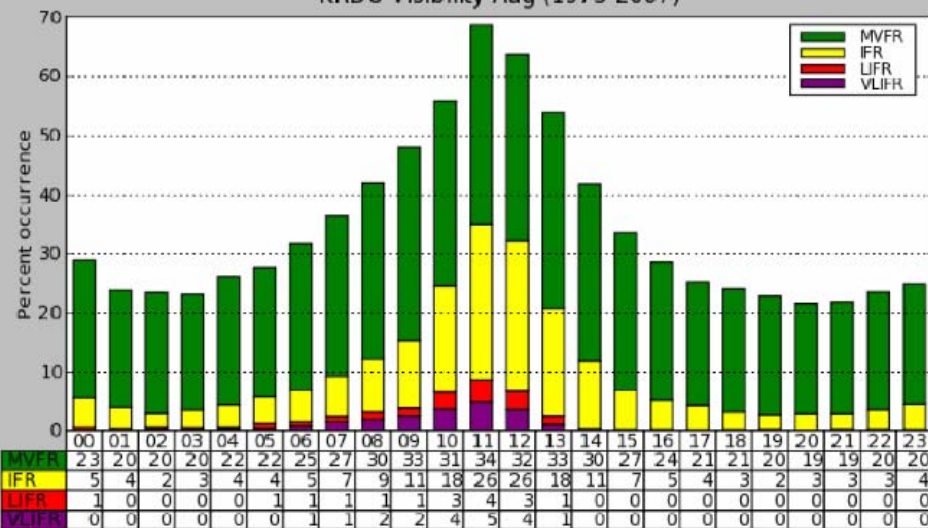
KRDU Ceiling Jul (1973-2007)



July very similar to June with most IFR conditions occurring in predawn hours (what one expects during the summer). The IFR occurrence climbs to nearly just over 15% by 12z.

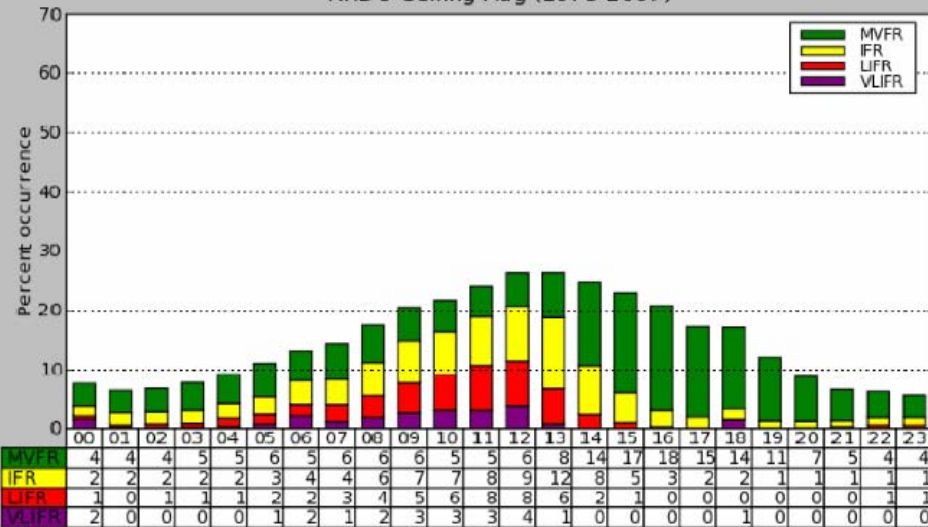
RDU August Conditional Climatology

KRDU Visibility Aug (1973-2007)



August contains some of the highest hourly percentages of IFR occurrence. 11-12z have a 30% or greater occurrence rate of IFR conditions. Fog of at least MVFR criteria develops over 70% of the time between 11-12z.

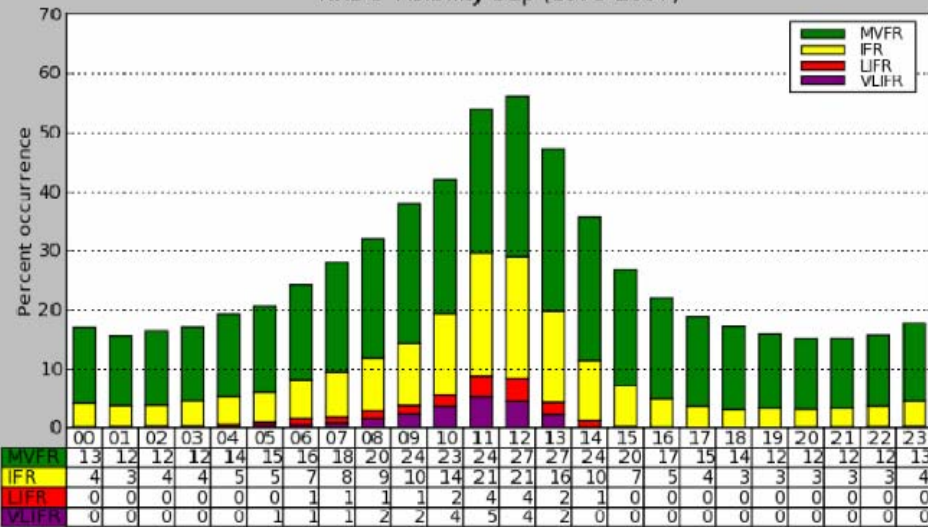
KRDU Ceiling Aug (1973-2007)



IFR ceiling occurrences reach or exceed 20% between 11z-13z, with over a 10% chance of ceilings lowering to less than 500 ft at 11-12z.

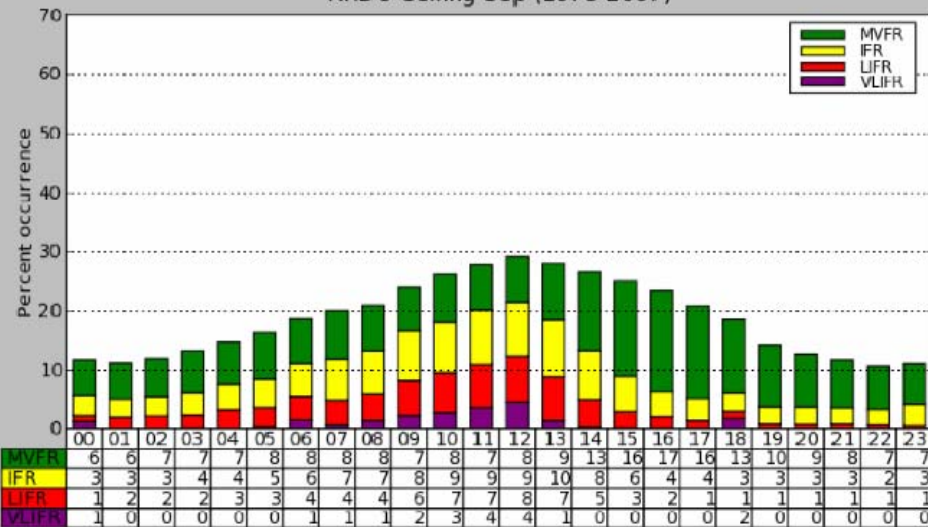
RDU September Conditional Climatology

KRDU Visibility Sep (1973-2007)



September very similar to August with the peak of IFR conditions (around 30%) occurring at 11z-12z. IFR conditions for September are still very much diurnal in nature, occurring in the predawn and sunrise hours.

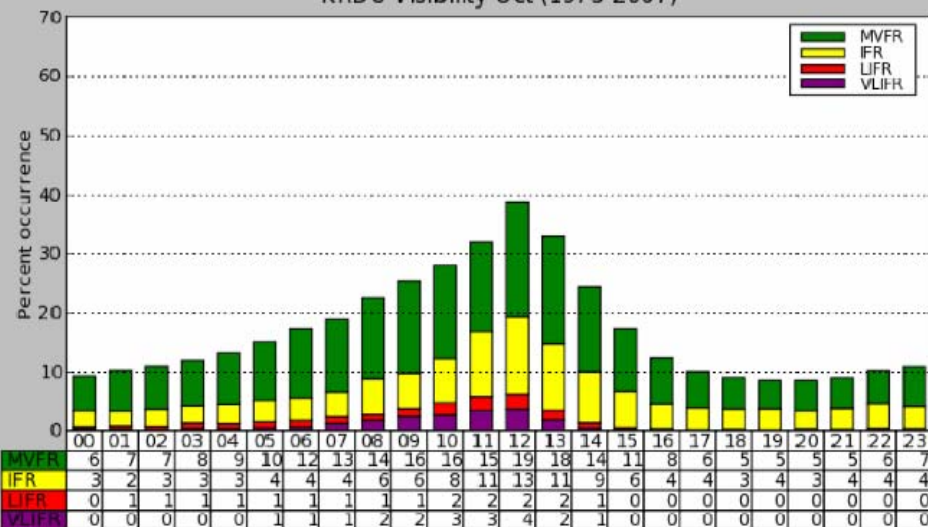
KRDU Ceiling Sep (1973-2007)



Similar to August, September IFR ceiling occurrences reach or exceed 20% between 11-12z, with over a 10% chance of ceilings lowering to less than 500 ft.

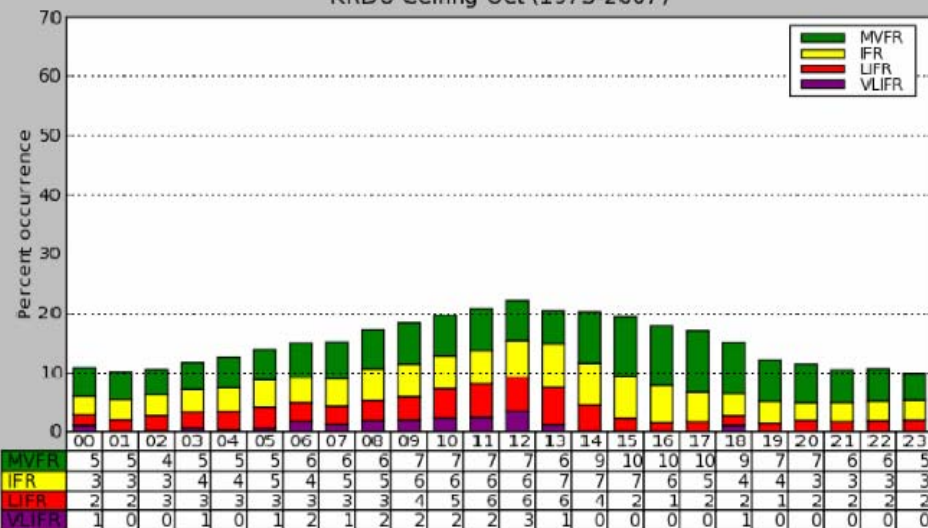
RDU October Conditional Climatology

KRDU Visibility Oct (1973-2007)



Fog occurrence rates take a considerable decline in October compared to the summer months. There continues to be a near 20% IFR occurrence rate at 12z.

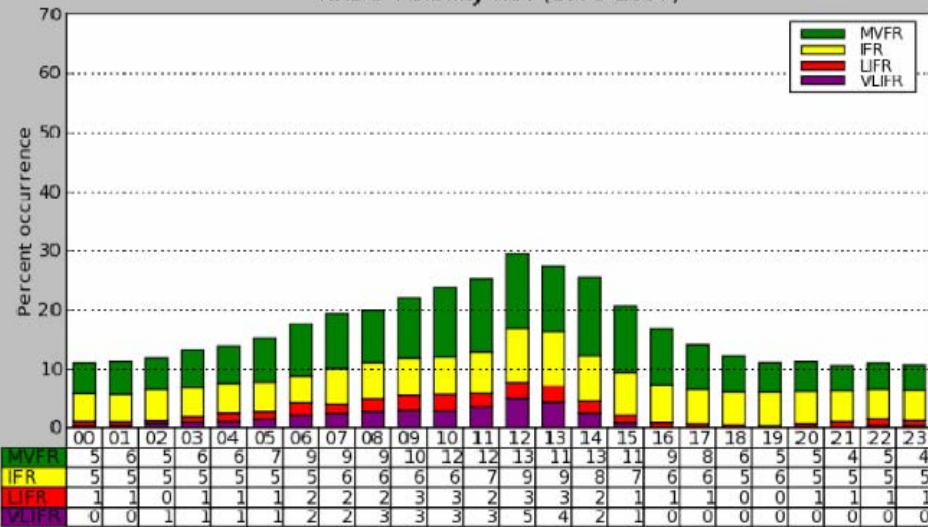
KRDU Ceiling Oct (1973-2007)



With seasonal transition, we see higher IFR occurrences spread out over more hours of the day, but the percent of occurrence at any one hour is lower compared to the summer months. A relative min in the late afternoon is still observed.

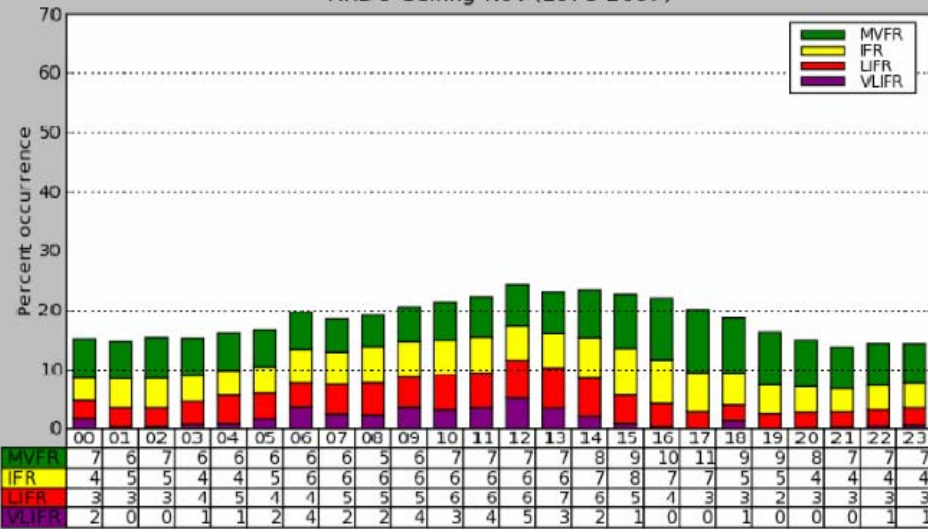
RDU November Conditional Climatology

KRDU Visibility Nov (1973-2007)



A 10% or greater IFR visibility occurrence can be found in the 07z-14z time frame in November, with the peak at 12z. Notice the highest hourly percentages are much lower compared to the previous months of August, September, and October.

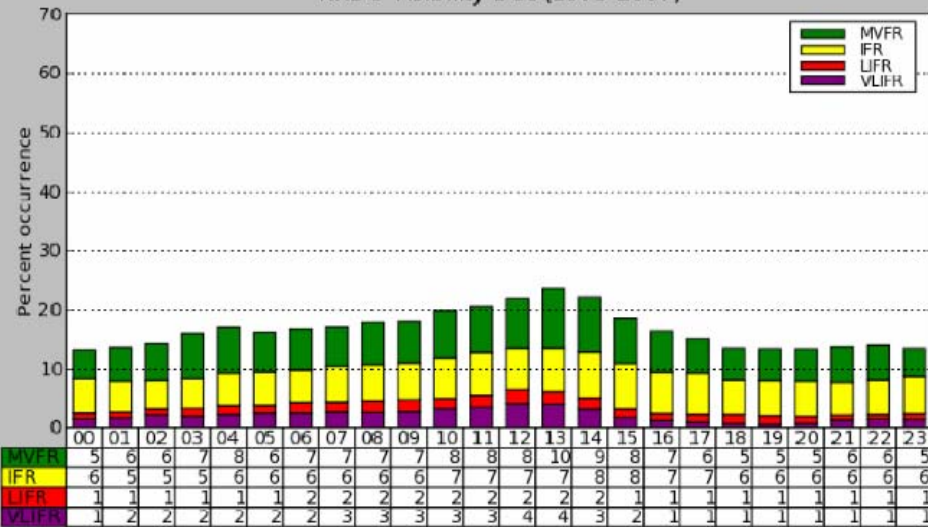
KRDU Ceiling Nov (1973-2007)



IFR ceilings occur at least 10% of the time from 04z-17z.

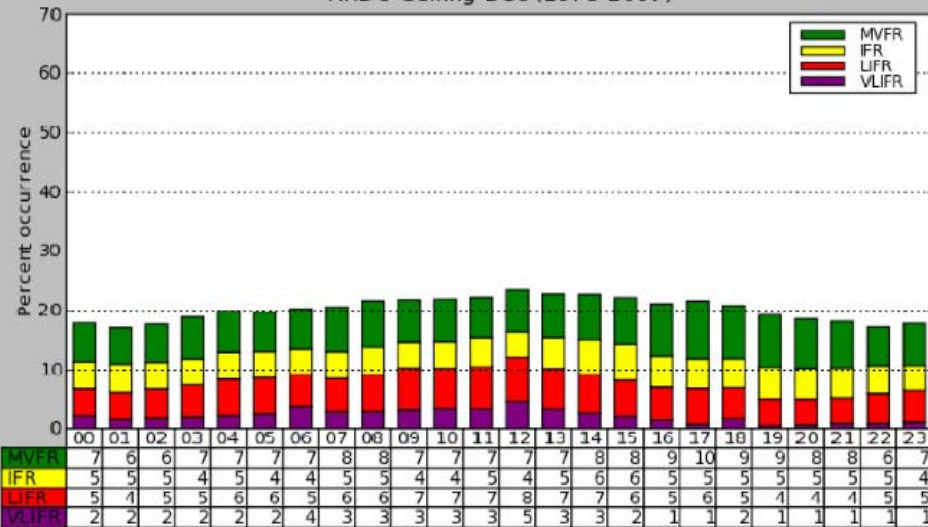
RDU December Conditional Climatology

KRDU Visibility Dec (1973-2007)



A discernable peak in IFR occurrence is not as apparent during the month of December with percentages hovering near 10%.

KRDU Ceiling Dec (1973-2007)



As cold air damming season commences, IFR ceiling occurrences approach or exceed 10% at all hours of the day during December. LIFR or VLIFR ceilings occur 10% or more of the time from 09-14z.

Key Findings

- Visibility is typically more of a concern in the warm season than ceilings. Ceilings become more of a concern in the cool season, lasting into the first few months of spring. In fact, April has the lowest occurrence of IFR visibilities while IFR ceilings occur the least during the month of July.
- There is a greater than 50% occurrence of MVFR conditions during the predawn hours of June through September.
- There is a greater than 30% occurrence of IFR conditions at 11-12z in August as well as a 20% or higher occurrence at 10-12z in July, August, and September.