

Conditional Climatology - Piedmont Triad International Airport (GSO)

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Piedmont Triad International Airport (GSO) Conditional Climatology

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

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 GSO is 1973-2007.

GSO Site Information



Buildings only 300 ft north of the ASOS

GSO
ASOS

Runways 1200 ft to the south and west of the ASOS

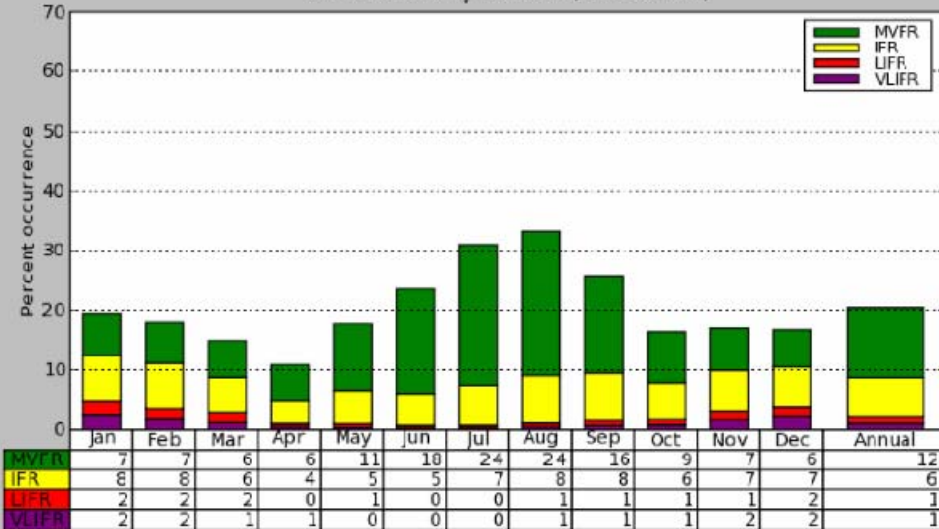
GSO Site Information



Site photos courtesy
of NCDC

GSO Annual Conditional Climatology

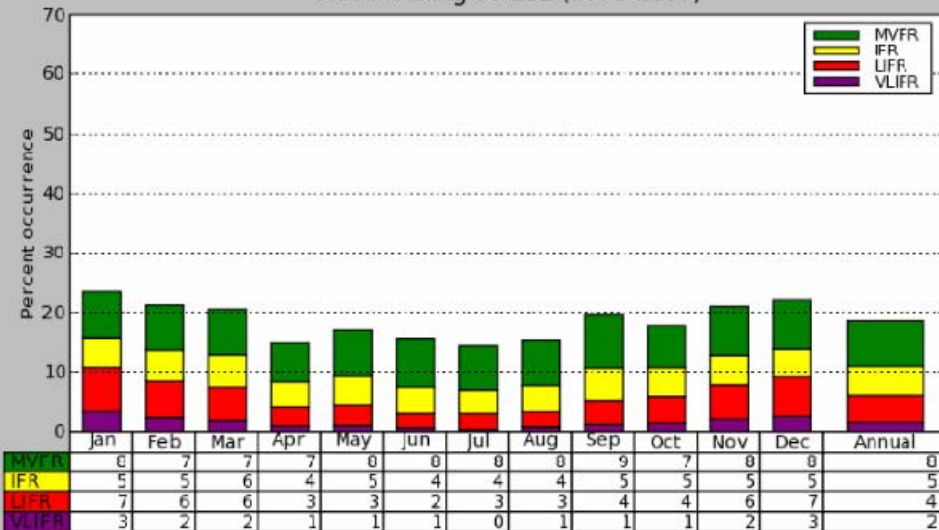
KGSO Visibility 00-23Z (1973-2007)



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

Highest probability of IFR or worse visibility is in January (12%) with the least chance occurring in April and June (5%).

KGSO Ceiling 00-23Z (1973-2007)

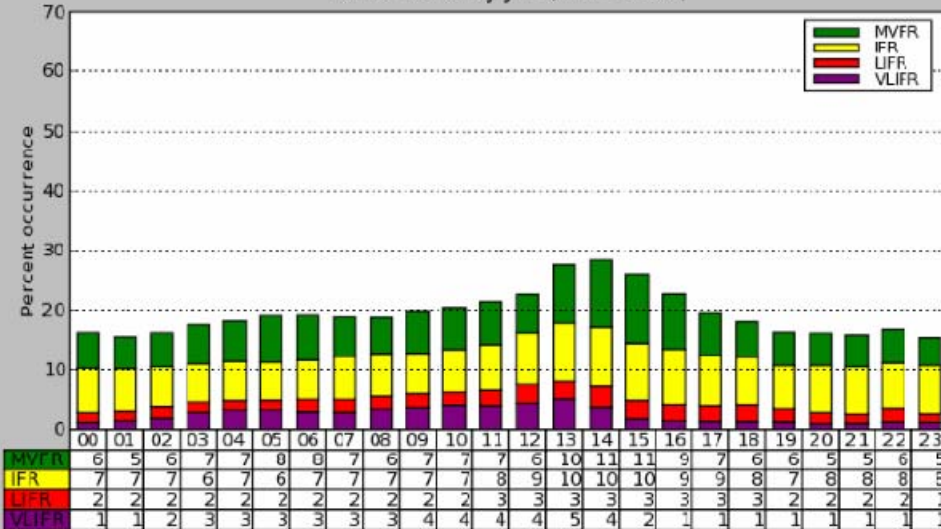


Annual percent of occurrence of IFR or worse ceilings is 11%.

The chances of IFR or worse ceilings are highest in the favored cold air damming months of November through March (13-15%). The percent of occurrence is lowest in June and July.

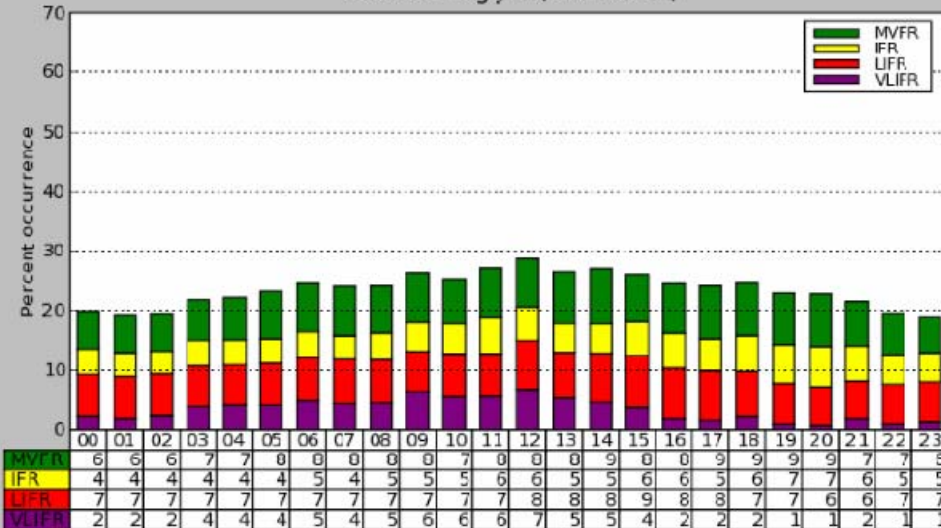
GSO January Conditional Climatology

KGSO Visibility Jan (1973-2007)



IFR or worse visibilities occur at least 10% of the time during all hours of the day, with occurrences exceeding 15% in the 11-15z time frame.

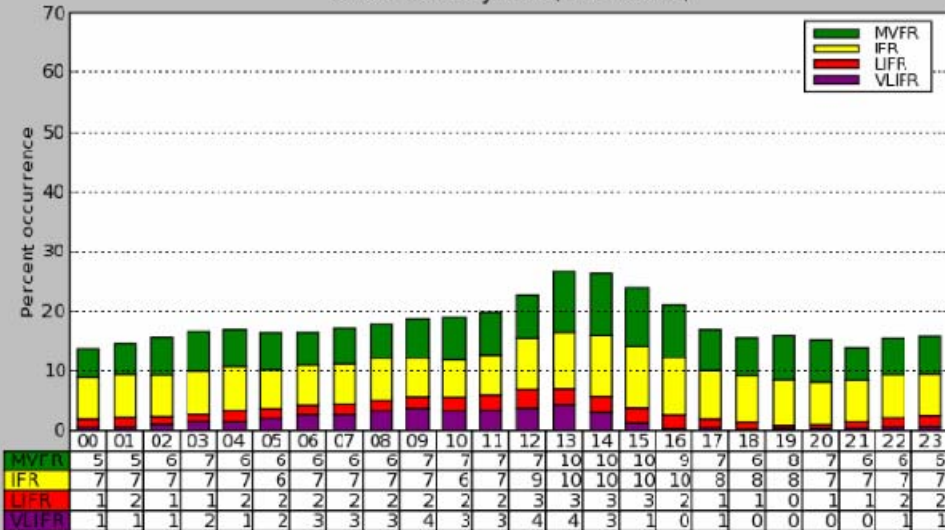
KGSO Ceiling Jan (1973-2007)



All hours of the day in January hold a 13% or higher occurrence of IFR ceilings. Ceilings below 500 ft occur over 10% of the time between 03z and 15z. IFR or worse ceilings occur over 20% of the time at 12z.

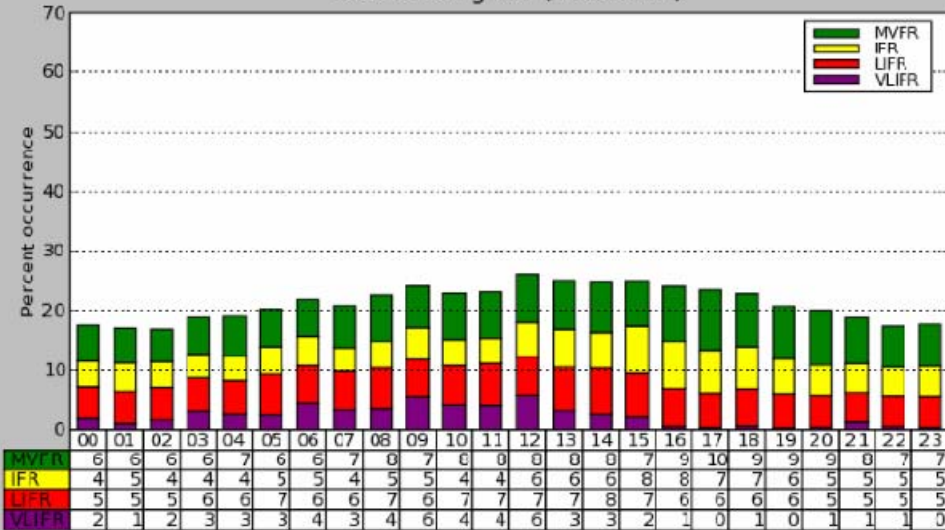
GSO February Conditional Climatology

KGSO Visibility Feb (1973-2007)



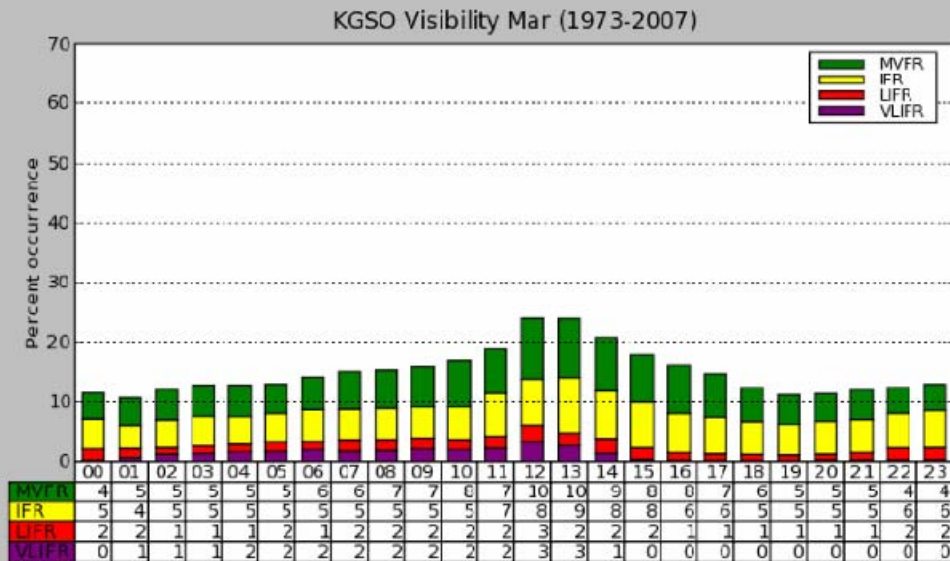
IFR visibilities occur 10% of the time in almost all hours of the day, with the exception of the late afternoon. The peak for IFR or worse conditions can be found from 12-15z.

KGSO Ceiling Feb (1973-2007)

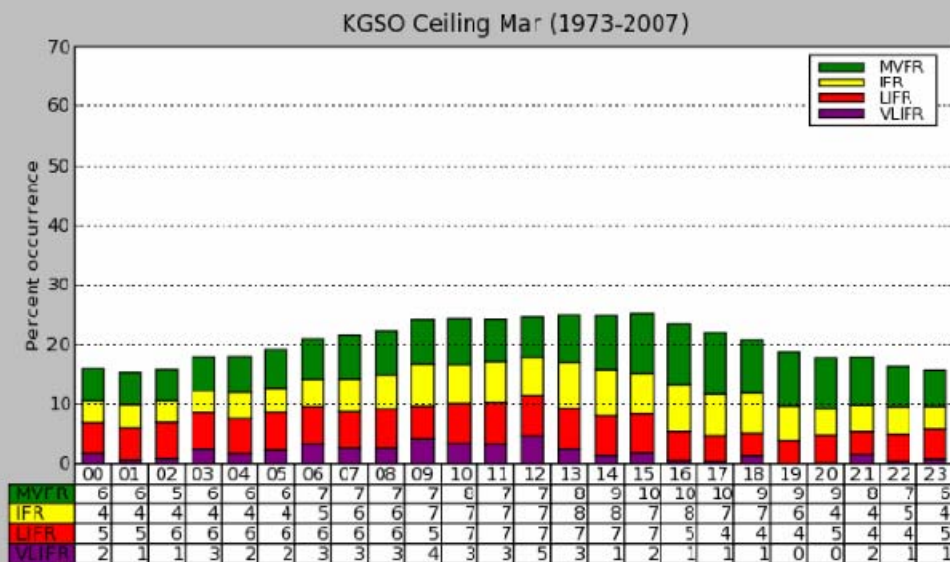


Much like January, each hour of February has a 10% occurrence rate of IFR conditions, with a 15% or greater occurrence rate between 05-15z.

GSO March Conditional Climatology



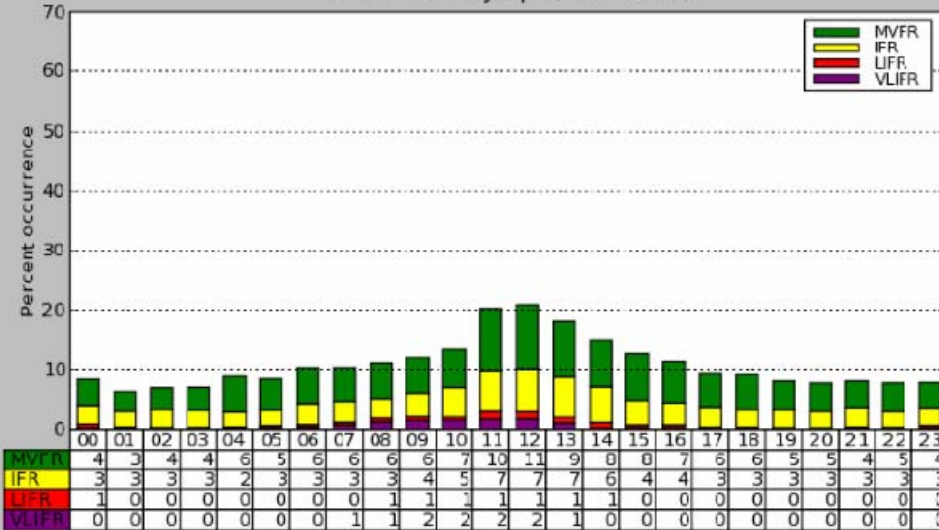
The hours of 11z-15z display a 10% or greater occurrence of IFR visibility.



Most hours still show a 10% or higher IFR occurrence as Jan and Feb does.

GSO April Conditional Climatology

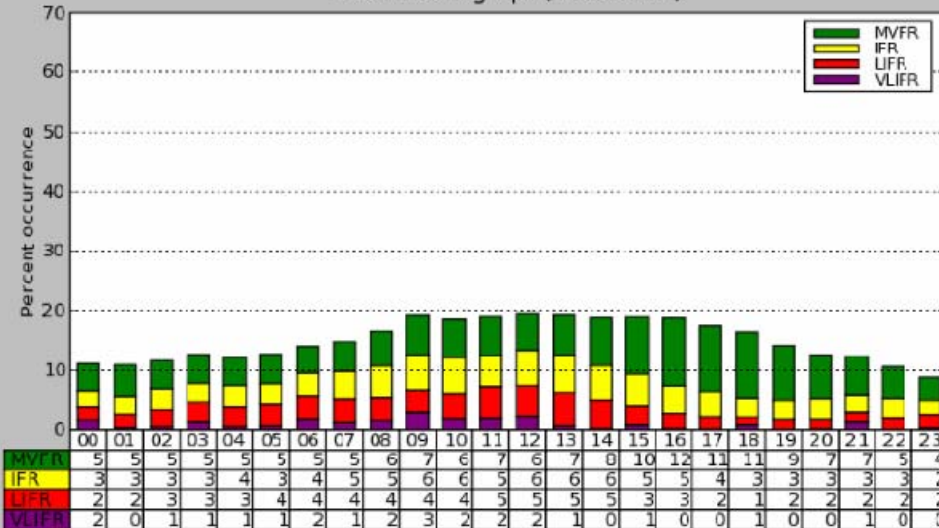
KGSO Visibility Apr (1973-2007)



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

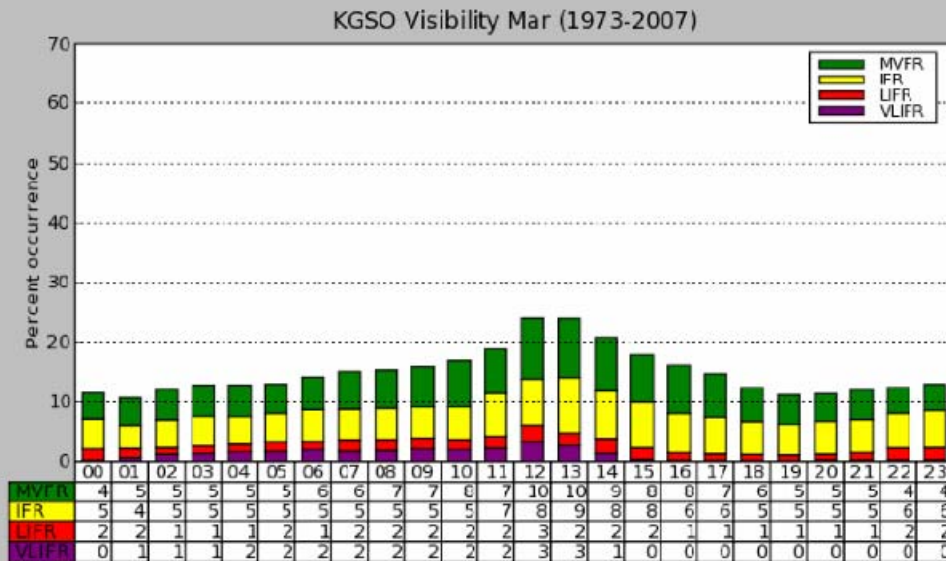
Only the hours of 11z and 12z has a 10% IFR visibility occurrence. While 17z-06z has a 3% or less occurrence rate.

KGSO Ceiling Apr (1973-2007)

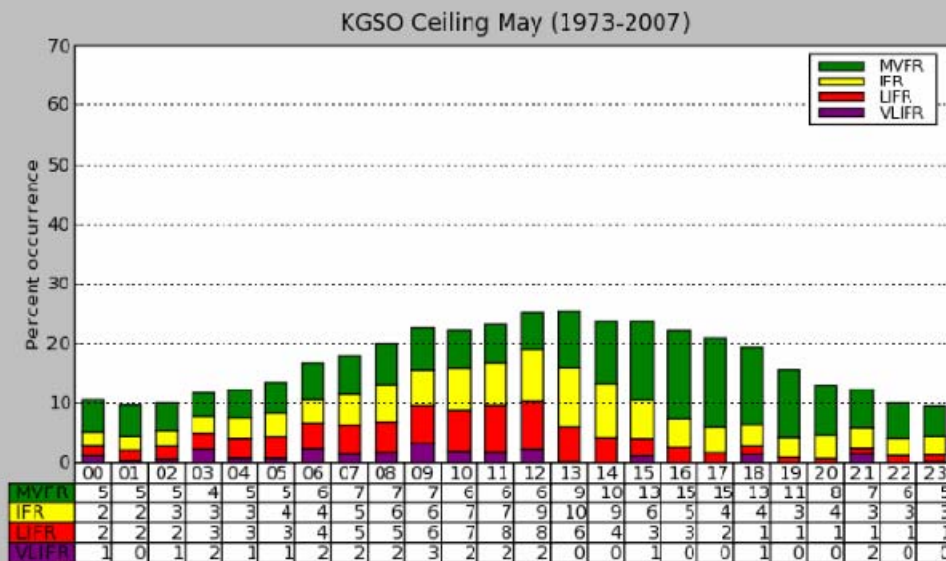


A noticeable decline in IFR ceilings can be seen compared to the first months of the year. Overnight hours carry the best chance of IFR ceilings, with percentages tailing off in the afternoon hours.

GSO May Conditional Climatology



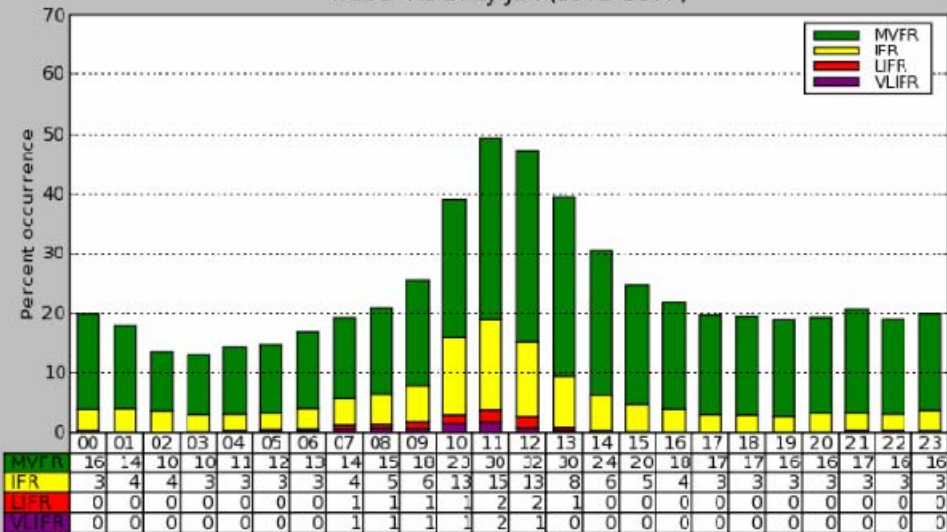
Diurnal instances of IFR fog begin to show up in May. The hours of 11z-14z are favored.



A 15% or higher occurrence of IFR or worse ceilings can be seen from 09-13z

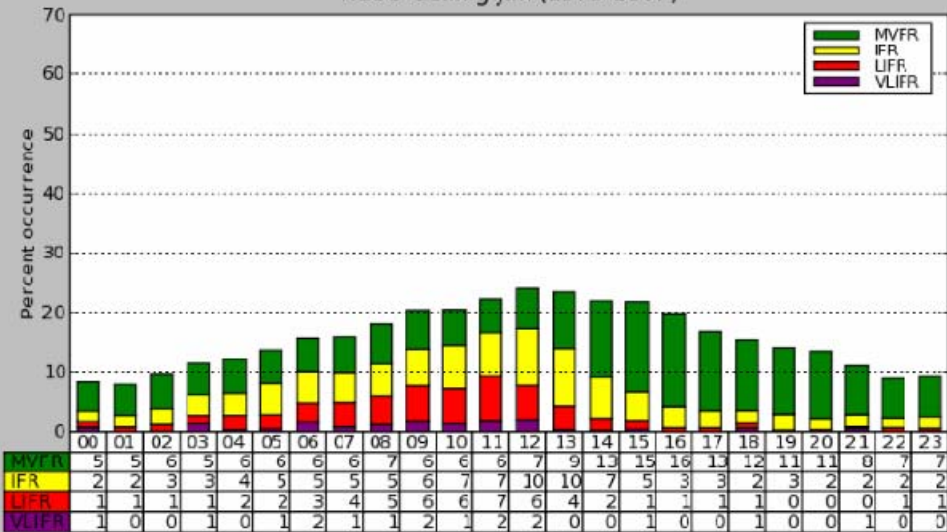
GSO June Conditional Climatology

KGSO Visibility Jun (1973-2007)



IFR fog of a diurnal nature for June. The hours of 10z-12z are favored. At least MVFR visibilities occur nearly 50% of the time at 12z.

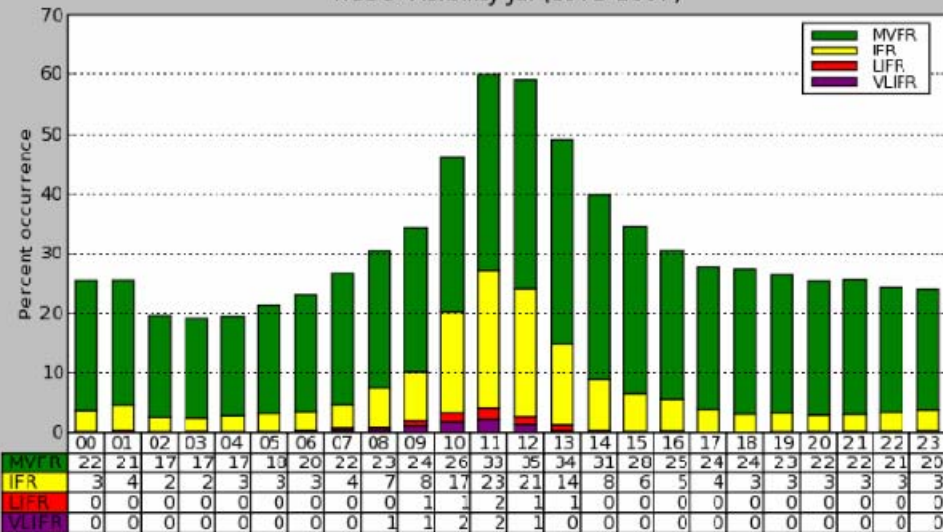
KGSO Ceiling Jun (1973-2007)



The highest occurrence of IFR ceilings are found during the hours of 08z-12z during the month of June. Very rarely are IFR ceilings a concern during the afternoon and evening hours.

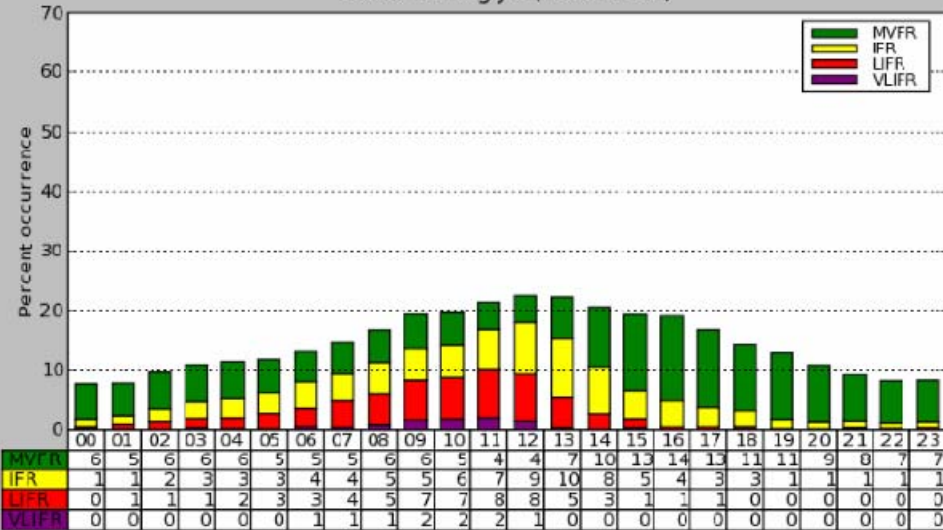
GSO July Conditional Climatology

KGSO Visibility Jul (1973-2007)



IFR fog diurnal in nature in July. However, the percent of occurrence climbs well above 20% from 11-12z. MVFR fog occurs 60% of the time at 12z.

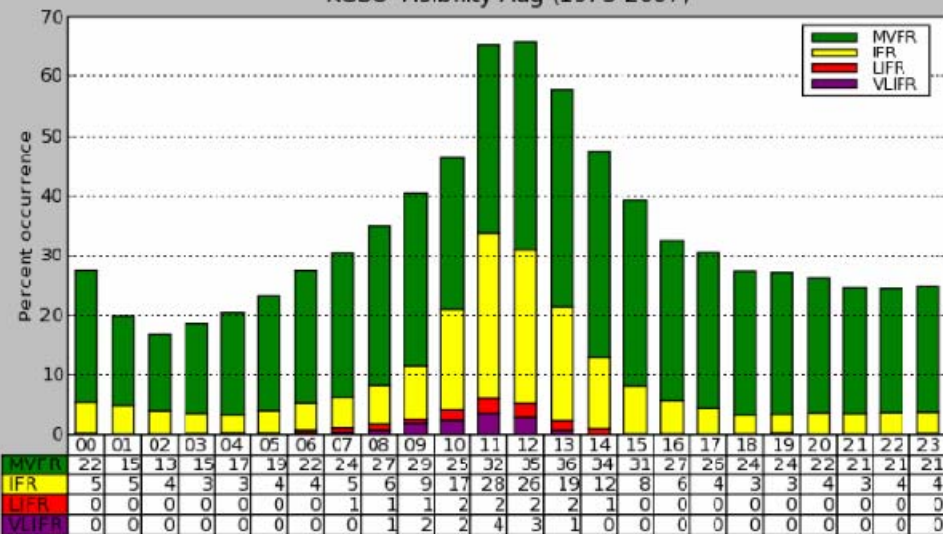
KGSO Ceiling Jul (1973-2007)



July very similar to June with most IFR conditions occurring in the predawn hours and very few concerns in the afternoon.

GSO August Conditional Climatology

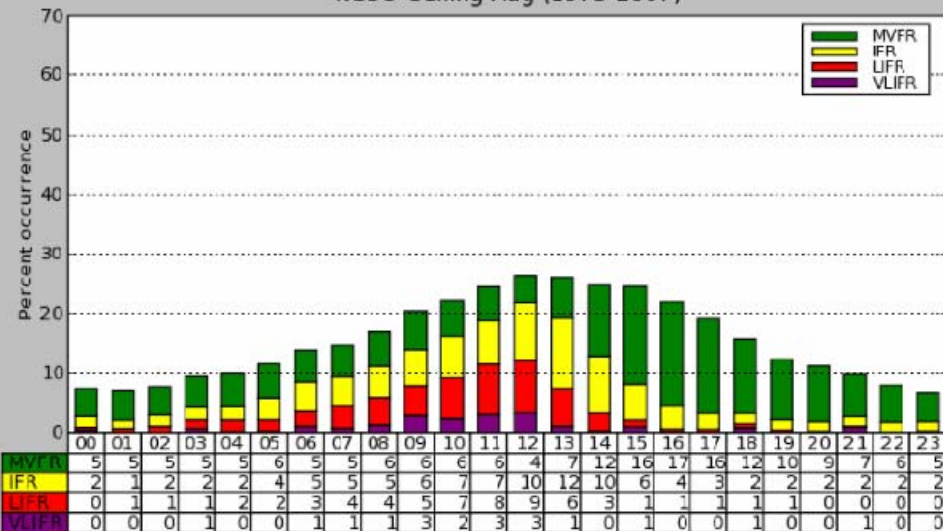
KGSO Visibility Aug (1973-2007)



August contains some of the highest hourly percentages of IFR visibility occurrence. 11-12z have a 30% or greater occurrence rate of IFR conditions. Despite the high IFR occurrence, note that visibilities of 500 ft or less only climb to 6% at 12z.

MVFR visibilities occur 65% of the time at 11z and 12z.

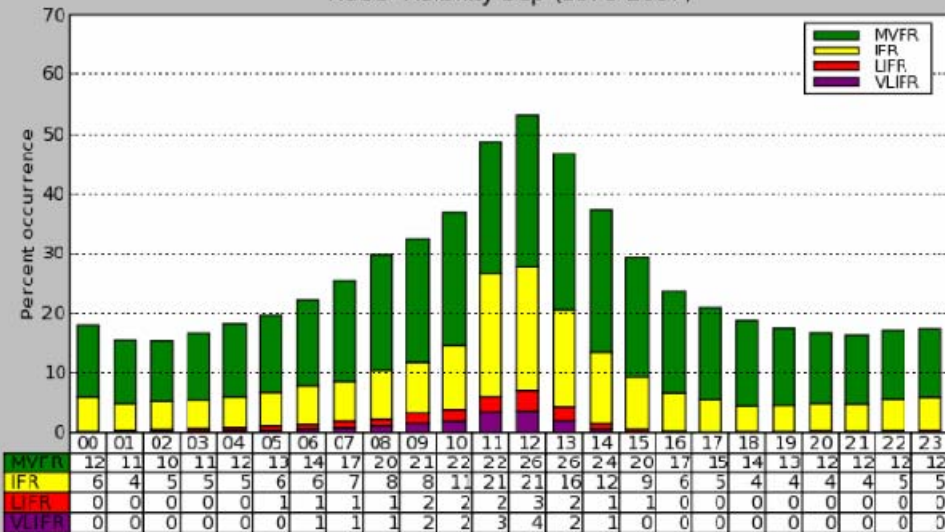
KGSO Ceiling Aug (1973-2007)



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

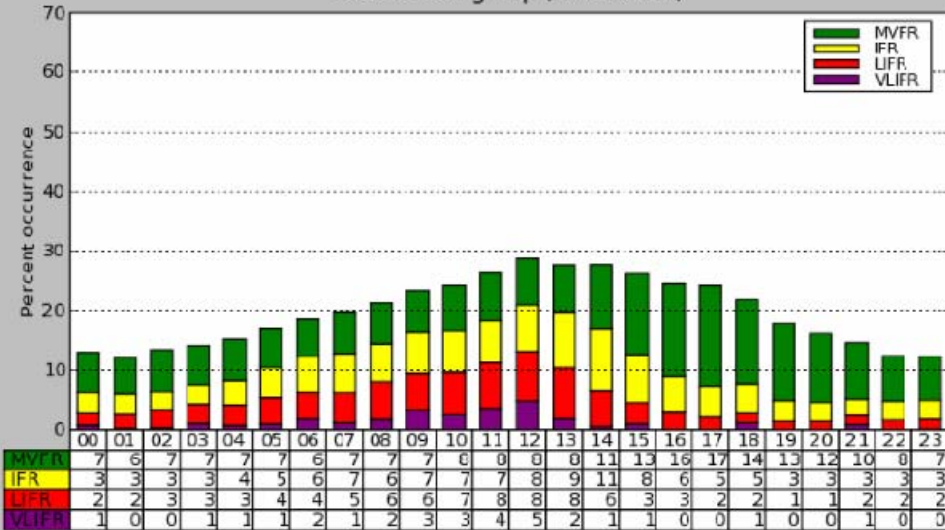
GSO September Conditional Climatology

KGSO Visibility Sep (1973-2007)



September begins a downward trend in IFR fog occurrences. Still diurnal in nature, the best chances for IFR visibilities is between 11z and 13z (20% or higher). MVFR fog still occurs over 50% of the time at 12z.

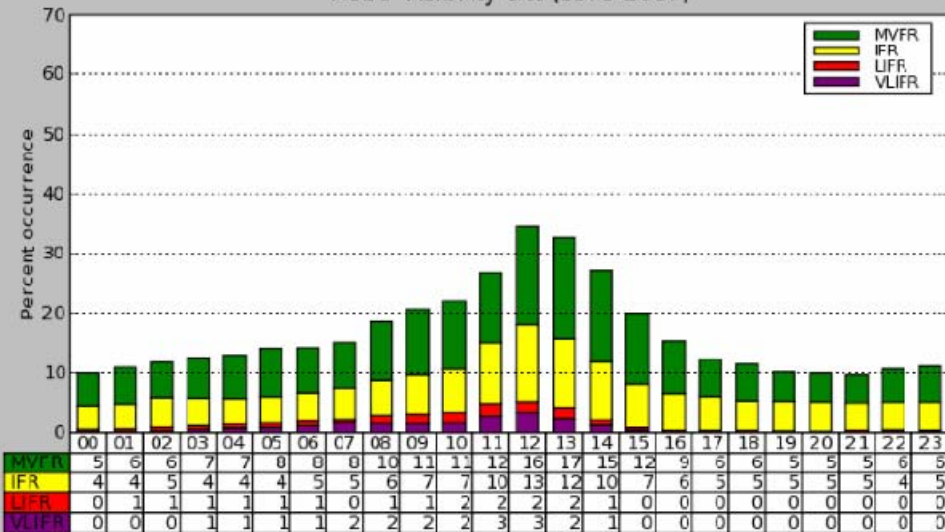
KGSO Ceiling Sep (1973-2007)



IFR ceilings occur nearly 20% of the time between 11-13z. LFR occurrences also climb above 10% during the same time.

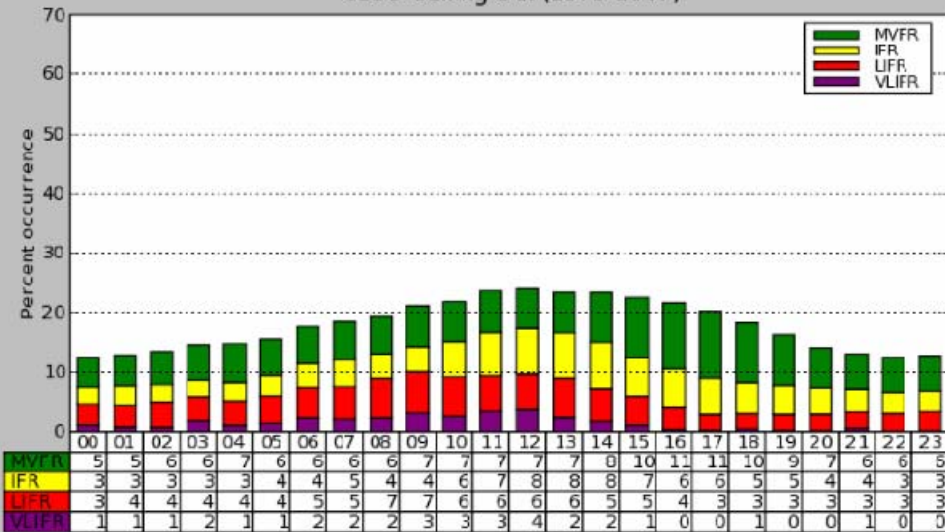
GSO October Conditional Climatology

KGSO Visibility Oct (1973-2007)



The hours of 09-14z carry a 10% occurrence of IFR visibilities.

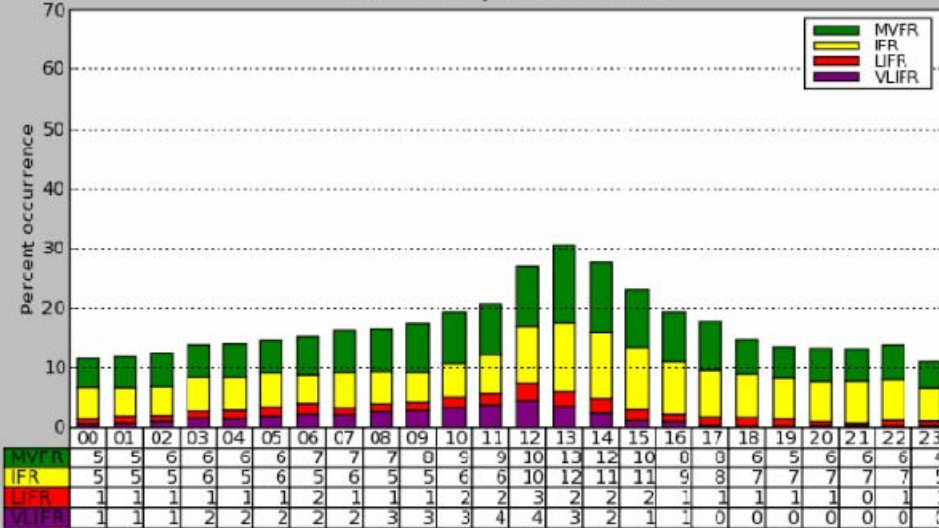
KGSO Ceiling Oct (1973-2007)



October ceiling trends compare closely to those of September. The overnight and early morning hours still favored for IFR conditions.

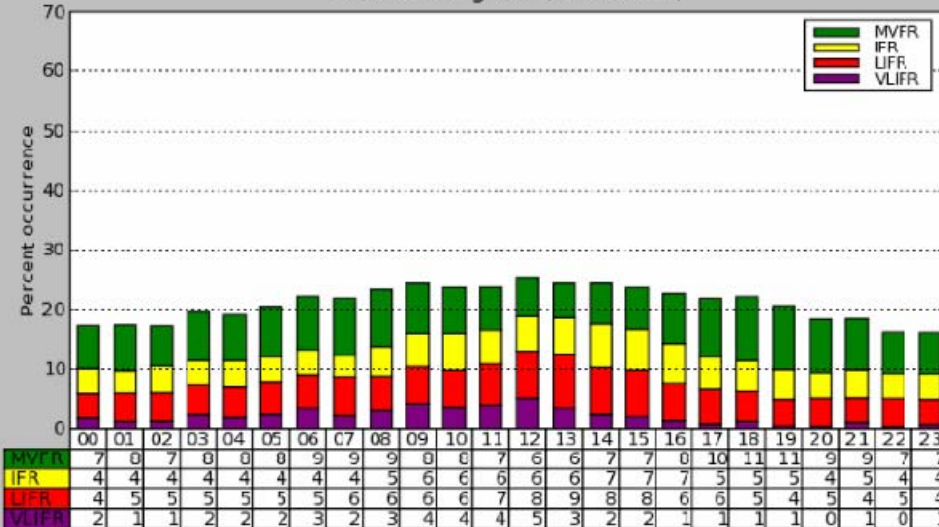
GSO November Conditional Climatology

KGSO Visibility Nov (1973-2007)



While the peak for IFR visibilities in November is still from about 10z-15z, the percentages increase in the afternoon and evening hours, compared to previous months.

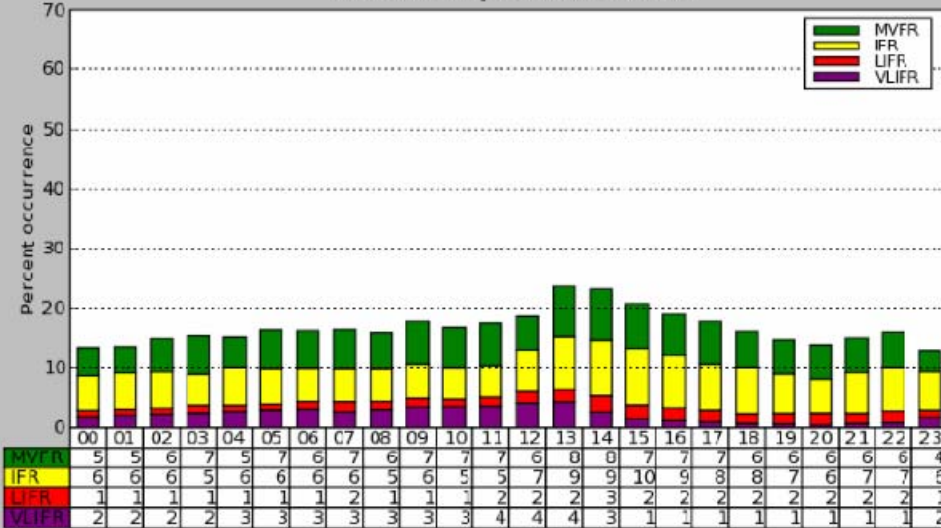
KGSO Ceiling Nov (1973-2007)



As CAD events become more likely, the occurrence rate of IFR ceilings increases at all hours (near or above 10% at all hours).

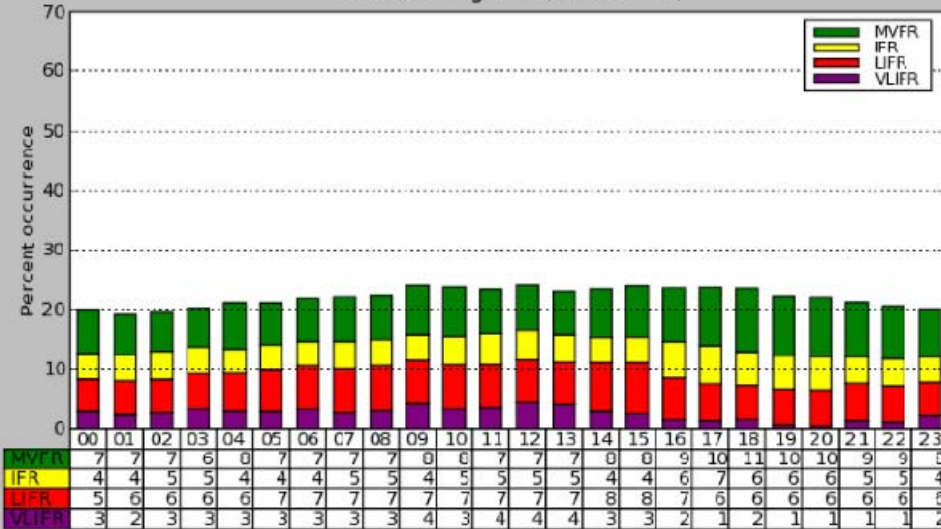
GSO December Conditional Climatology

KGSO Visibility Dec (1973-2007)



There is nearly a 10% occurrence rate of IFR visibilities at all hours of the day in December. Slightly higher percentages can be found from 12-15z.

KGSO Ceiling Dec (1973-2007)



As cold air damming season commences, IFR occurrences exceed 10% at all hours of the day during December. LFR ceilings also increase to around 10% from 05-15z.

Key Findings

- The ASOS unit is in close proximity to buildings to its north and runways to its south. The exact effect of this is hard to determine, but there may be some influence on radiational cooling nights that forecasters should keep in mind.
- MVFR visibilities are most prevalent in July and August, primarily occurring in the predawn to dawn hours. However, IFR visibilities occur the most in Dec/Jan/Feb.
- IFR ceilings occur the most in the cold air damming months, with a minimum occurring in the spring and summer. After the minimum in July/August, IFR conditions quickly rise back up past 10% in September and persist through March.