Conditional Climatology - Winston-Salem Smith Reynolds Airport (INT)

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NWS Raleigh, NC

October 13, 2008

Winston-Salem Smith Reynolds Airport (INT) Conditional Climatology

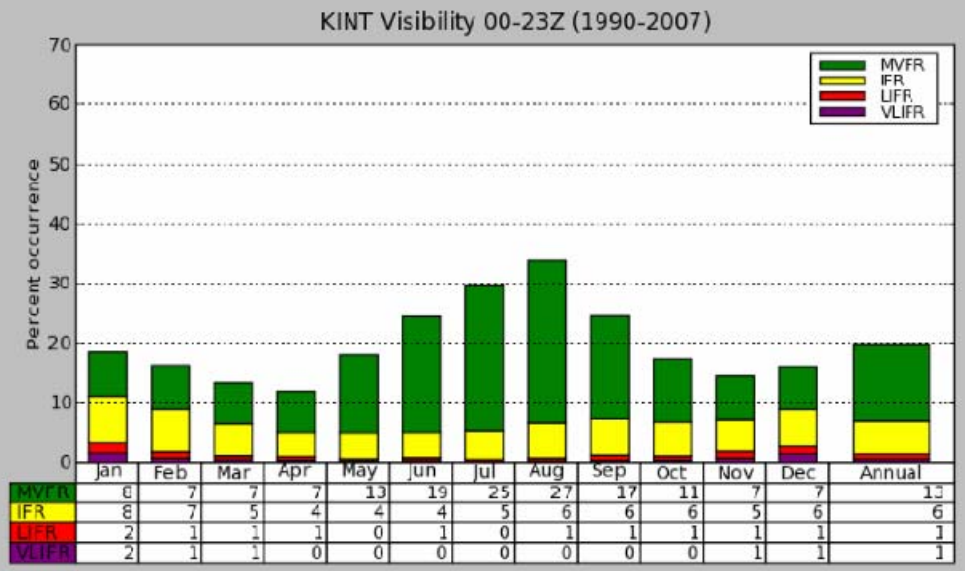
The climatology graphs presented show the percentage of time that visibility and ceiling for varying flight categories occur at INT.

The flight categories are defined as:

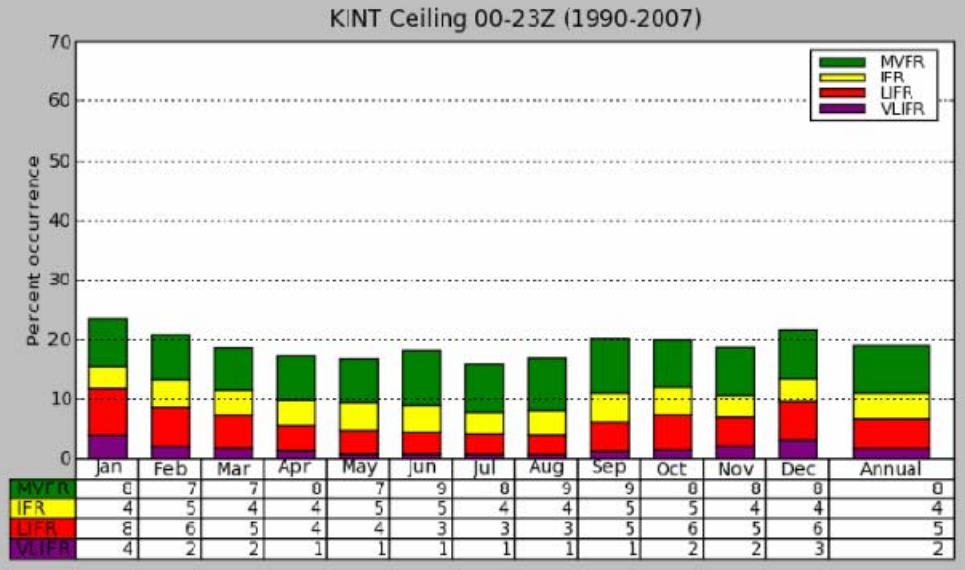
MVFR GTE 1,000 to LTE 3,000ft and/or GTE 3 to LTE 5SM
IFR GTE 500 to LT 1,000ft and/or GTE 1 to LT 3SM
LIFR GTE 200 to LT 500ft and/or GTE 1/2 to LT 1SM
VLIFR LT 200ft and/or LT 1/2SM

The period of record for this review at INT is 1990-2007.

INT Annual Conditional Climatology



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
MVFR	8	7	7	7	13	19	25	27	17	11	7	7	13
IFR	8	7	5	4	4	4	5	6	6	6	5	6	6
LIFR	2	1	1	1	0	1	0	1	1	1	1	1	1
VLIFR	2	1	1	0	0	0	0	0	0	0	1	1	1



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
MVFR	8	7	7	8	7	9	8	9	9	8	8	8	8
IFR	4	5	4	4	5	5	4	4	5	5	4	4	4
LIFR	8	6	5	4	4	3	3	3	5	6	5	6	5
VLIFR	4	2	2	1	1	1	1	1	1	2	2	3	2

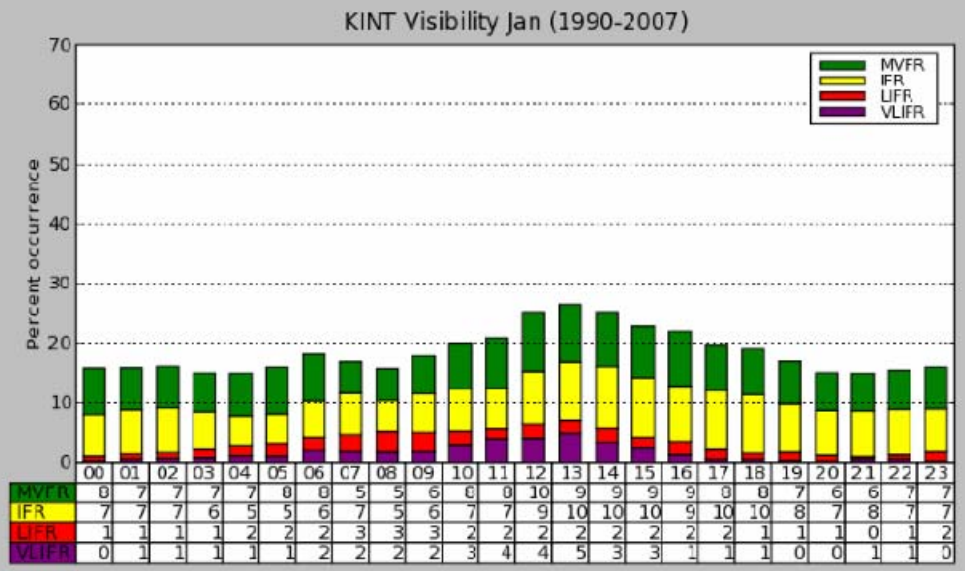
Annual percent of occurrence of IFR or worse visibilities is 8%

Highest probability of IFR or worse visibility is in January (12%) with the least chance occurring in May (4%).

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

The chances of IFR or worse ceilings are highest January (16%) with the Sep-Mar period carrying a 10% or higher occurrence rate. The percent of occurrence is lowest in July and August.

INT January Conditional Climatology



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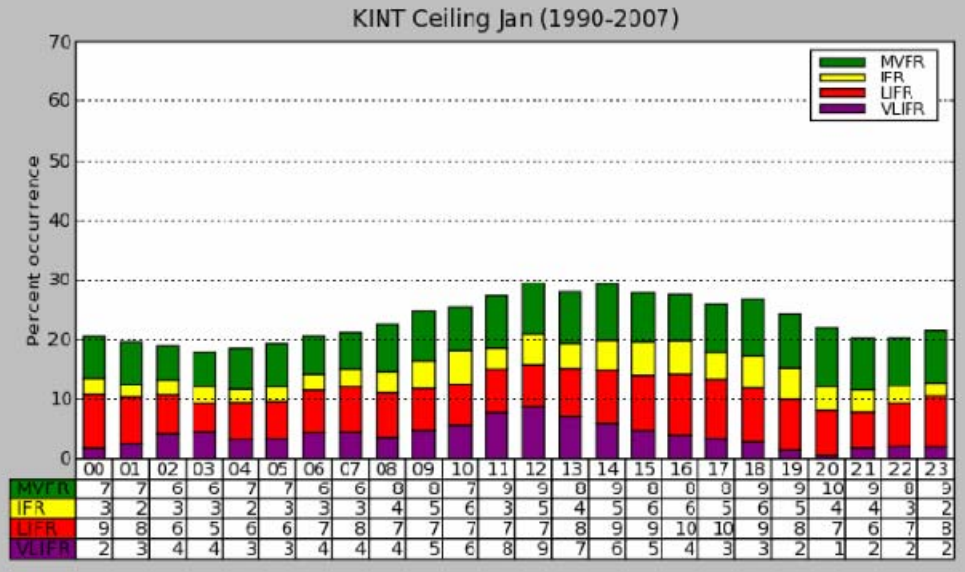
MVFR	8	7	7	7	7	8	8	5	5	6	8	8	10	9	9	9	9	8	8	7	6	6	7	7
IFR	7	7	7	6	5	5	6	7	5	6	7	7	9	10	10	10	9	10	10	8	7	8	7	7
LIFR	1	1	1	1	2	2	2	3	3	3	2	2	2	2	2	2	2	2	1	1	1	0	1	2
VLIFR	0	1	1	1	1	1	2	2	2	2	3	4	4	5	3	3	1	1	1	0	0	1	1	0

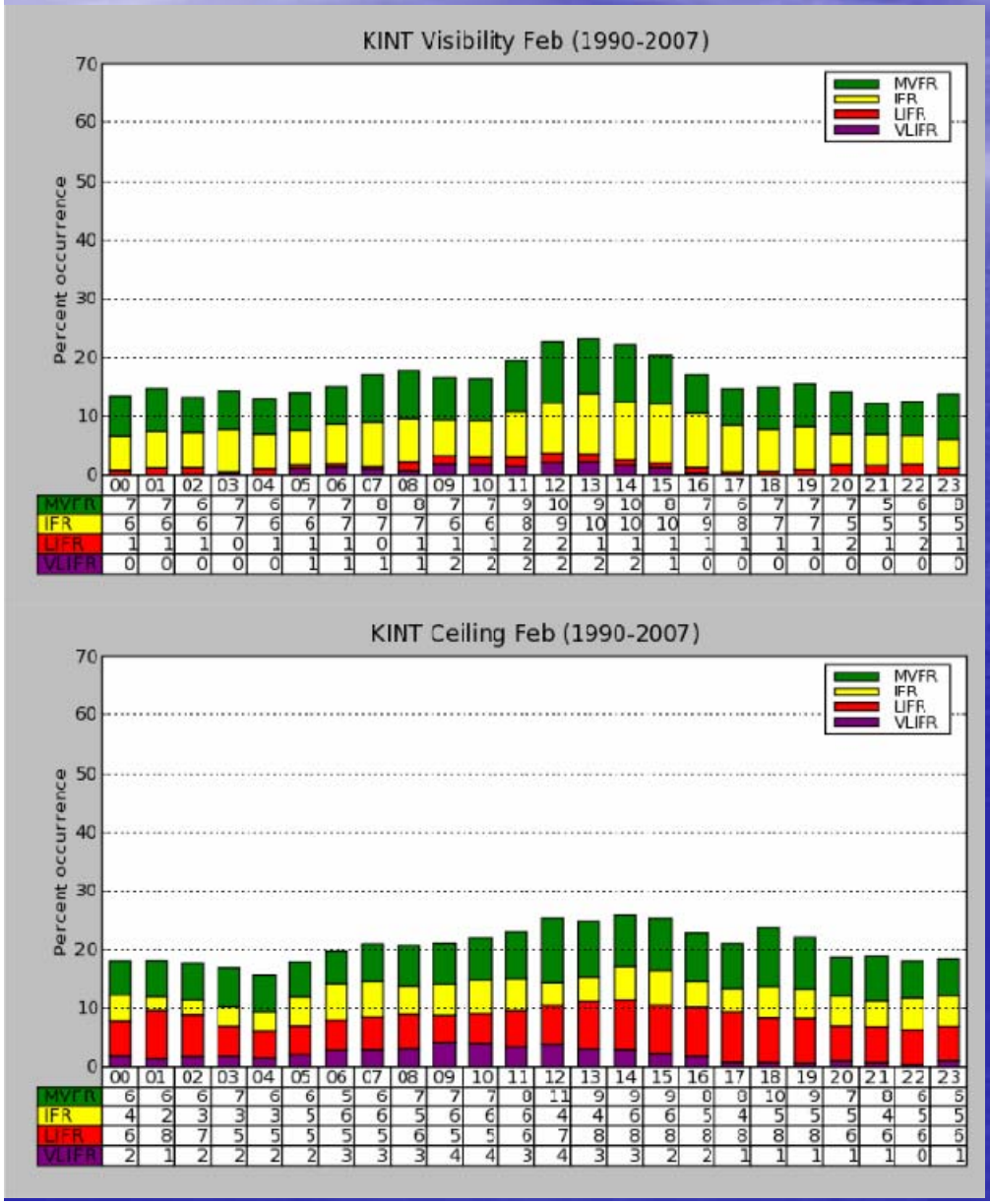


	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
MVFR	7	7	6	6	7	7	6	6	8	8	7	9	9	8	9	8	8	8	9	9	10	9	8	9
IFR	3	2	3	3	2	3	3	3	4	5	6	3	5	4	5	6	6	5	6	5	4	4	3	2
LIFR	9	8	6	5	6	6	7	8	7	7	7	7	7	8	9	9	10	10	9	8	7	6	7	8
VLIFR	2	3	4	4	3	3	4	4	4	5	6	8	9	7	6	5	4	3	3	2	1	2	2	2

IFR or worse visibilities occur at least 10% of the time from 06z-18z, with a relative maximum occurring between 12-14z

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 06-19z and again from 23-02z. LIFR occurrences climb above 15% from 11-14z.

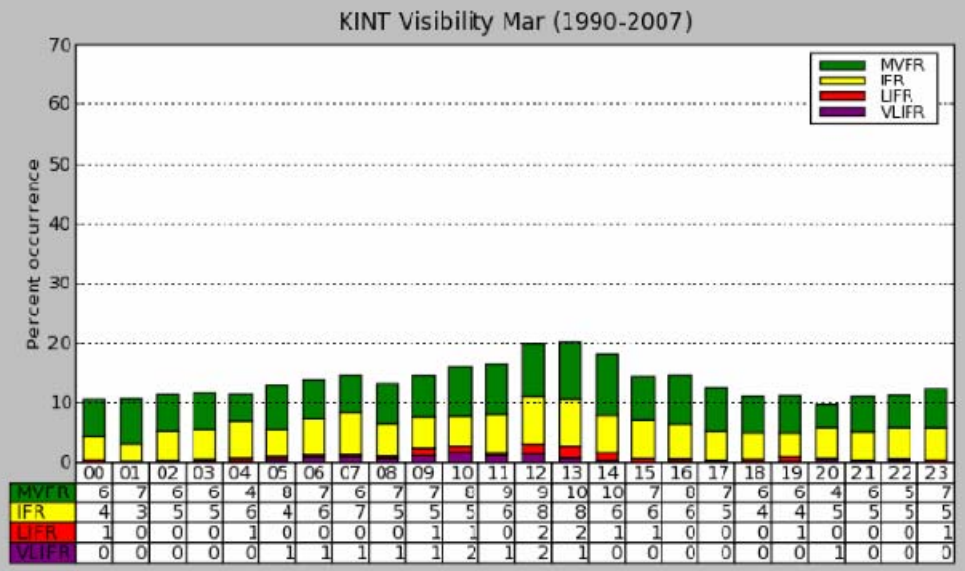
INT February Conditional Climatology



There is a 10% or greater occurrence of IFR or worse visibilities between 11z and 16z.

Much like January, each hour of February has a 10% occurrence rate of IFR conditions, with a 15% or greater occurrence rate between 09-16z. The overall occurrence of LIFR conditions is not quite as high as compared to January.

INT March Conditional Climatology



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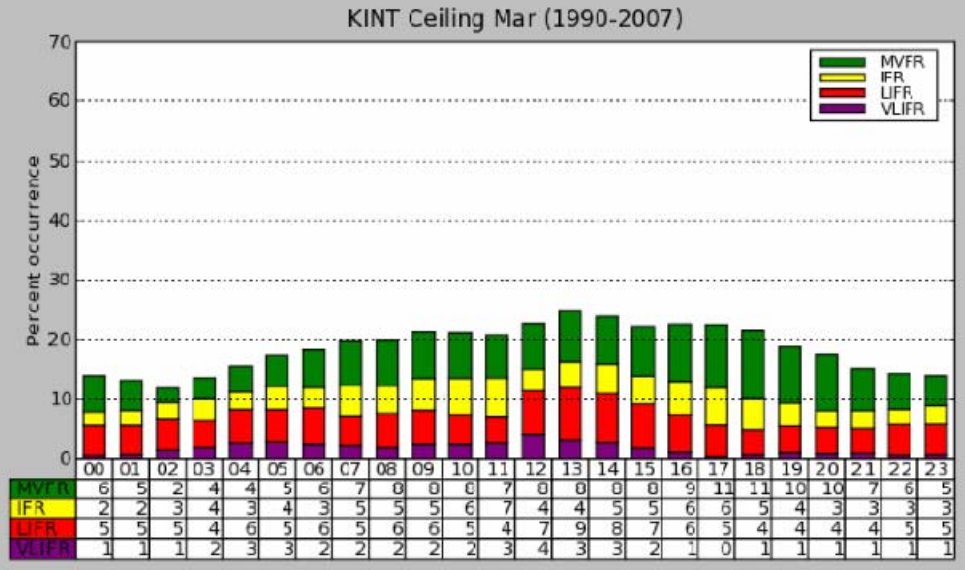
MVFR	6	7	6	6	4	8	7	6	7	7	8	9	9	10	10	7	8	7	6	6	4	6	5	7
IFR	4	3	5	5	6	4	6	7	5	5	5	6	8	8	6	6	6	5	4	4	5	5	5	5
LIFR	1	0	0	0	1	0	0	0	0	1	1	0	2	2	1	1	0	0	0	1	0	0	0	1
VLIFR	0	0	0	0	0	1	1	1	1	1	2	1	2	1	0	0	0	0	0	0	1	0	0	0

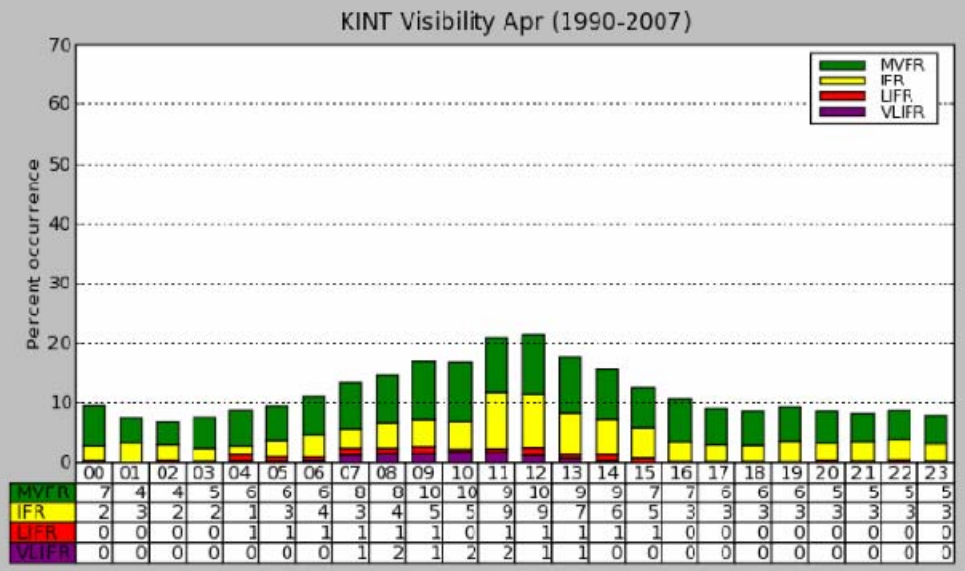


	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
MVFR	6	5	2	4	4	5	6	7	8	8	8	7	8	8	8	8	9	11	11	10	10	7	6	5
IFR	2	2	3	4	3	4	3	5	5	5	6	7	4	4	5	5	6	6	5	4	3	3	3	3
LIFR	5	5	5	4	6	5	6	5	6	6	5	4	7	9	8	7	6	5	4	4	4	4	5	5
VLIFR	1	1	1	2	3	3	2	2	2	2	2	3	4	3	3	2	1	0	1	1	1	1	1	1

Only the hours of 12z and 13z display a 10 % or greater occurrence of IFR visibility.

While most hours still show a 10 % or higher IFR occurrence as Jan and Feb does, a decline in occurrence is seen during the late afternoon and early evening hours.

INT April Conditional Climatology



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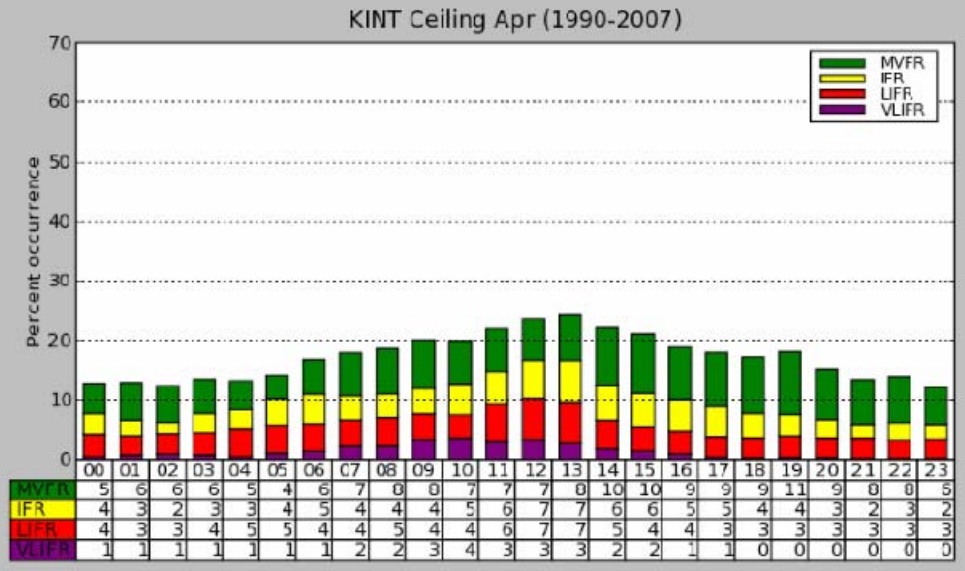
MVFR	7	4	4	5	6	6	6	8	8	10	10	9	10	9	9	7	7	6	6	6	5	5	5	5
IFR	2	3	2	2	1	3	4	3	4	5	5	9	9	7	6	5	3	3	3	3	3	3	3	3
LIFR	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0
VLIFR	0	0	0	0	0	0	0	1	2	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0



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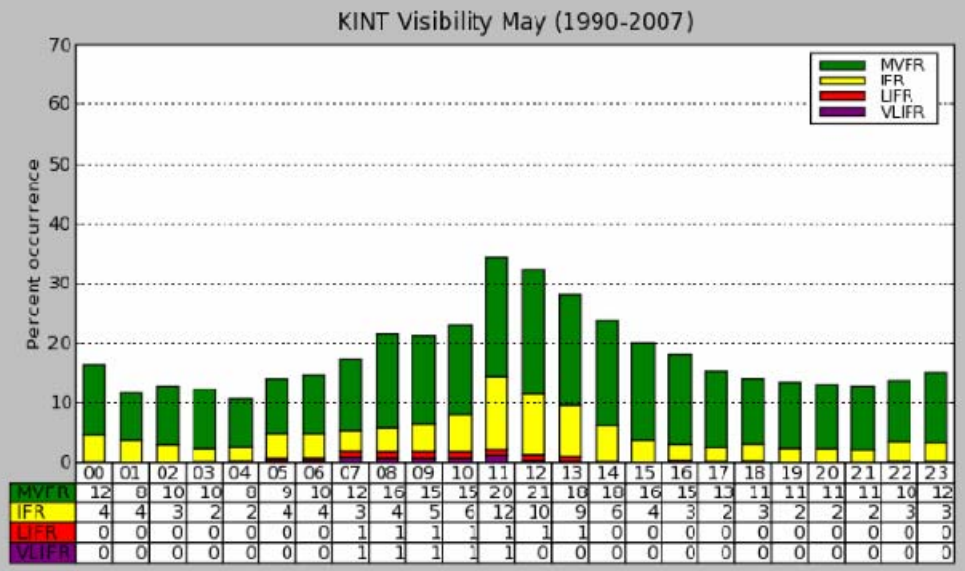
MVFR	5	6	6	6	5	4	6	7	8	8	7	7	7	8	10	10	9	9	9	11	9	8	8	5
IFR	4	3	2	3	3	4	5	4	4	4	5	6	7	7	6	6	5	5	4	4	3	2	3	2
LIFR	4	3	3	4	5	5	4	4	5	4	4	6	7	7	5	4	4	3	3	3	3	3	3	3
VLIFR	1	1	1	1	1	1	1	2	2	3	4	3	3	3	2	2	1	1	0	0	0	0	0	0

Only the hours of 11z and 12z has a 10% IFR occurrence. While 16z-04z has a 3% or less occurrence rate.

April sees the IFR ceiling occurrence trend to more of a diurnal nature, with the highest rates found from late at night to the morning hours. The peak of IFR ceilings is seen from 11-13z.

INT May Conditional Climatology



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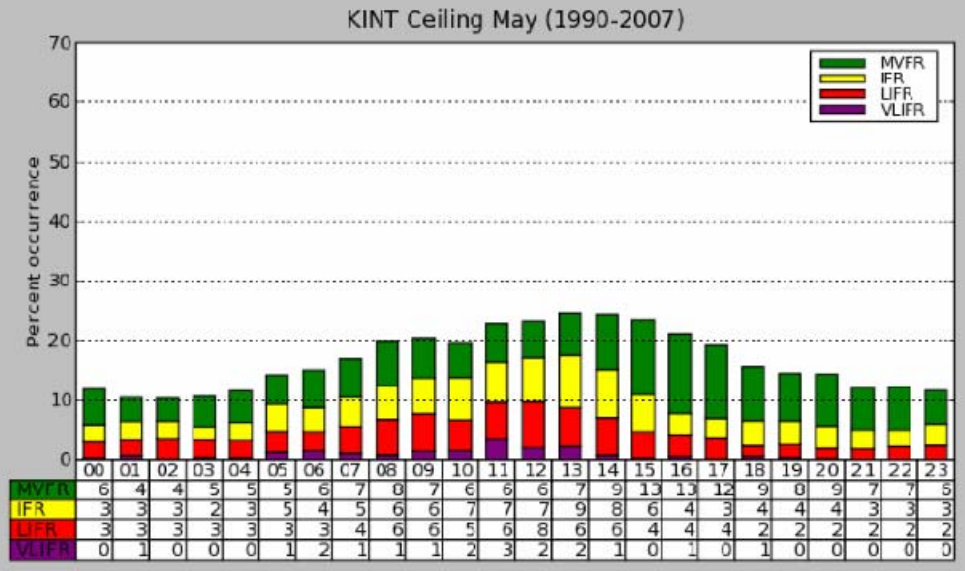
MVFR	12	8	10	10	8	9	10	12	16	15	15	20	21	16	10	16	15	13	11	11	11	11	10	12
IFR	4	4	3	2	2	4	4	3	4	5	6	12	10	9	6	4	3	2	3	2	2	2	3	3
LIFR	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
VLIFR	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0



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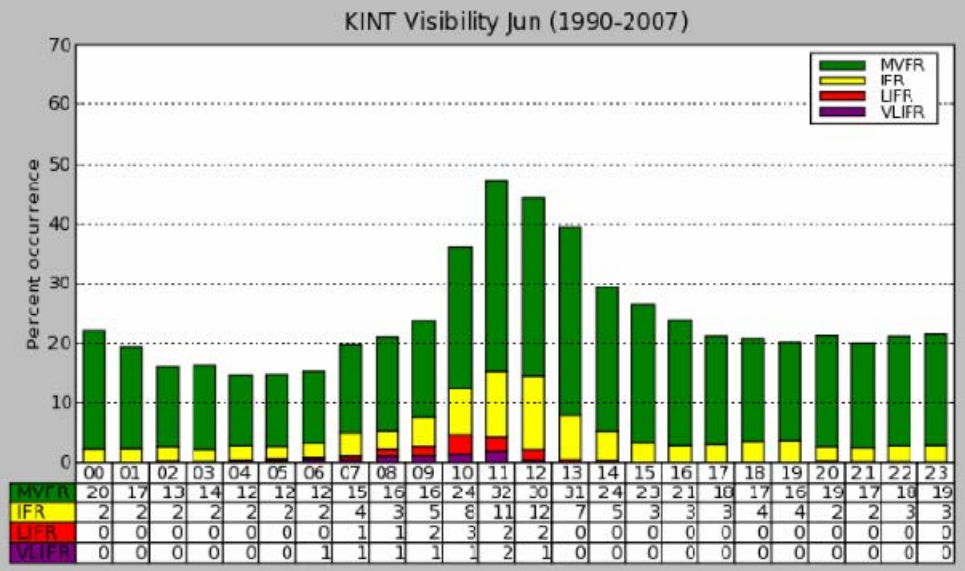
MVFR	6	4	4	5	5	5	6	7	8	7	6	6	6	7	9	13	13	12	9	8	9	7	7	5
IFR	3	3	3	2	3	5	4	5	6	6	7	7	7	9	8	6	4	3	4	4	4	3	3	3
LIFR	3	3	3	3	3	3	3	4	6	6	5	6	8	6	6	4	4	4	2	2	2	2	2	2
VLIFR	0	1	0	0	0	1	2	1	1	1	2	3	2	2	1	0	1	0	1	0	0	0	0	0

Only the hours of 11-13z have a 10% or greater occurrence of IFR fog.

A 15% or higher occurrence of IFR or worse ceilings can be seen from 11-14z

INT June Conditional Climatology



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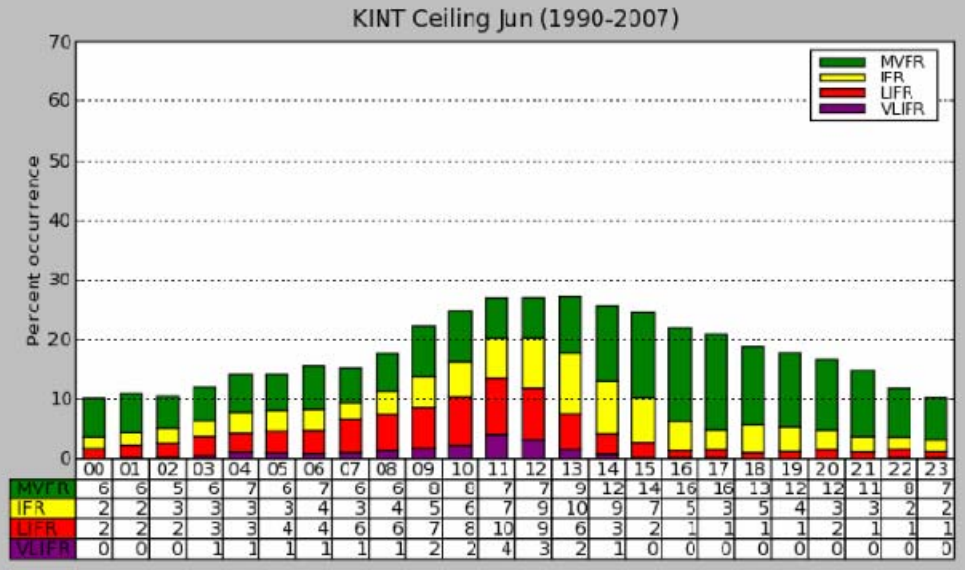
MVFR	20	17	13	14	12	12	12	15	16	16	24	32	30	31	24	23	21	18	17	16	19	17	18	19
IFR	2	2	2	2	2	2	2	4	3	5	8	11	12	7	5	3	3	3	4	4	2	2	3	3
LIFR	0	0	0	0	0	0	0	1	1	2	3	2	2	0	0	0	0	0	0	0	0	0	0	0
VLIFR	0	0	0	0	0	0	1	1	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0



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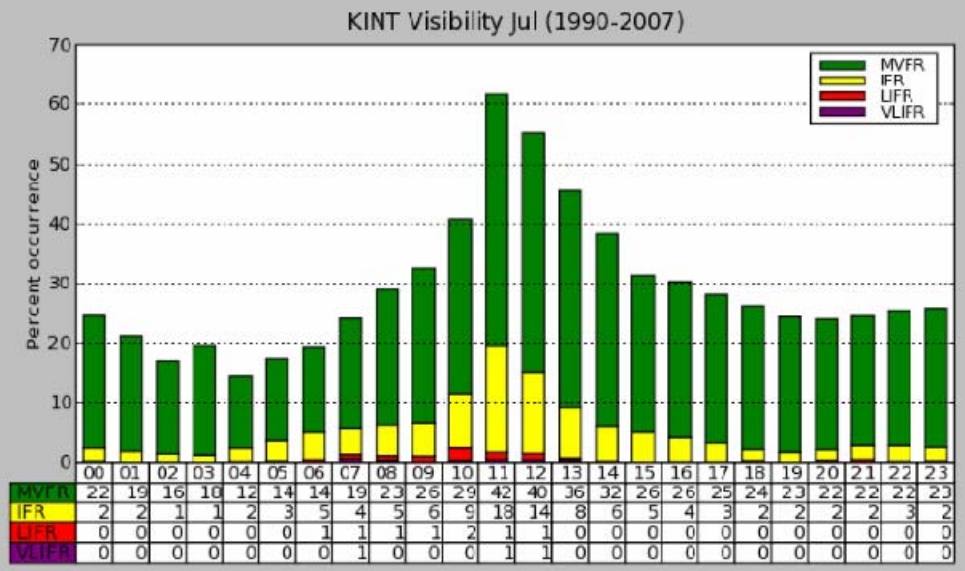
MVFR	6	6	5	6	7	6	7	6	6	8	8	7	7	9	12	14	16	16	13	12	12	11	8	7
IFR	2	2	3	3	3	3	4	3	4	5	6	7	9	10	9	7	5	3	5	4	3	3	2	2
LIFR	2	2	2	3	3	4	4	6	6	7	8	10	9	6	3	2	1	1	1	1	2	1	1	1
VLIFR	0	0	0	1	1	1	1	1	1	2	2	4	3	2	1	0	0	0	0	0	0	0	0	0

IFR fog of a diurnal nature for June. The hours of 10z-12z are favored. At least MVFR visibilities occur nearly 40% of the time at 11z and 12z.

There is a noticeable peak in IFR conditions during the hours of 10z-13z during the month of June, with only very small percentages during the daylight and early evening hours.

INT July Conditional Climatology



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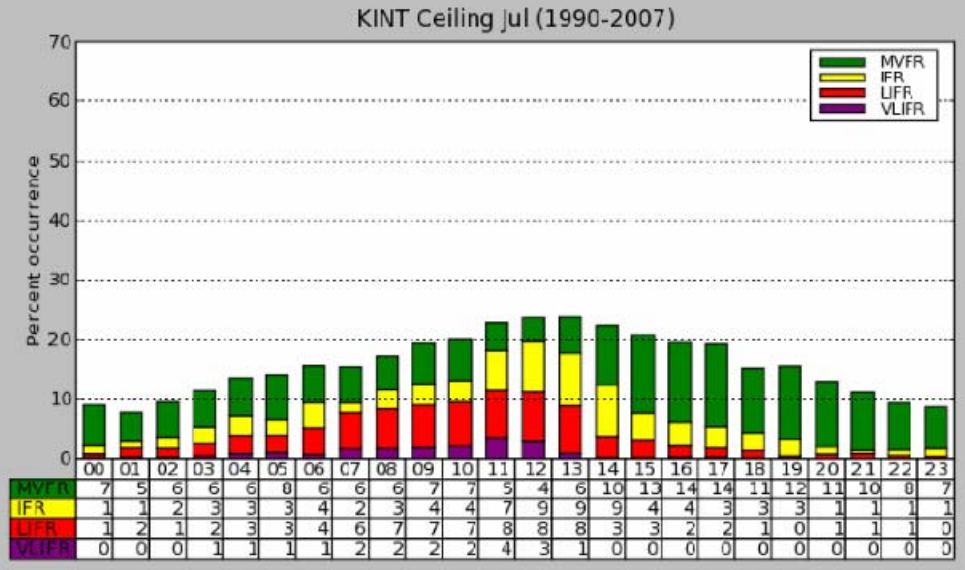
MVFR	22	19	16	18	12	14	14	19	23	26	29	42	40	36	32	26	26	25	24	23	22	22	22	23
IFR	2	2	1	1	2	3	5	4	5	6	9	18	14	8	6	5	4	3	2	2	2	2	3	2
LIFR	0	0	0	0	0	0	1	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0
VLIFR	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0



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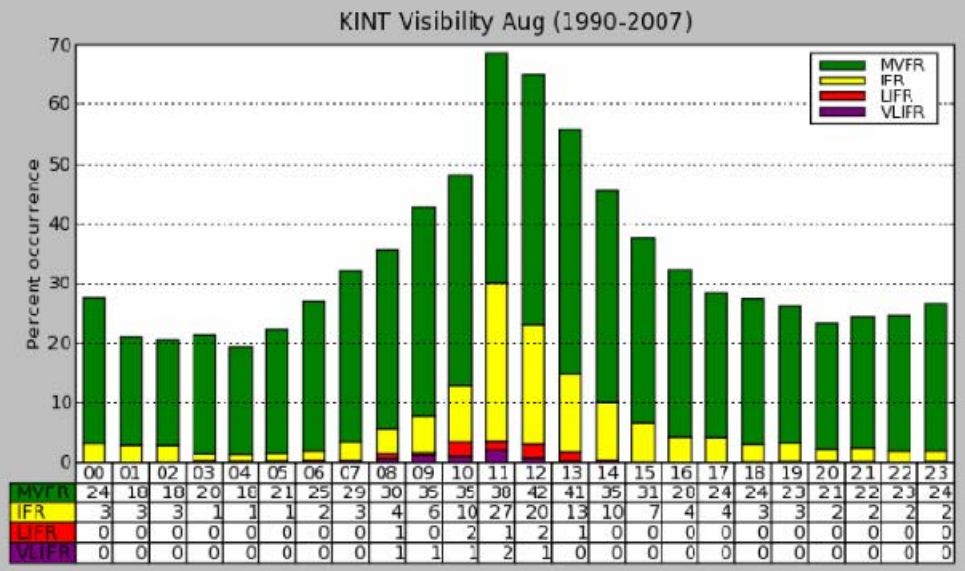
MVFR	7	5	6	6	6	8	6	6	6	7	7	5	4	6	10	13	14	14	11	12	11	10	8	7
IFR	1	1	2	3	3	3	4	2	3	4	4	7	9	9	9	4	4	3	3	3	1	1	1	1
LIFR	1	2	1	2	3	3	4	6	7	7	7	8	8	8	3	3	2	2	1	0	1	1	1	0
VLIFR	0	0	0	1	1	1	1	2	2	2	2	4	3	1	0	0	0	0	0	0	0	0	0	0

IFR fog diurnal in nature in July. However, the percent of occurrence climbs to 20 % at 11z. The MVFR rate is Higher than 50 % at 12z and over 60 % at 11z.

July very similar to June with most IFR conditions occurring in predawn hours The IFR occurrence climbs to 20 % by 12z with LIFR ceilings over 10 % at 11z and 12z.

INT August Conditional Climatology



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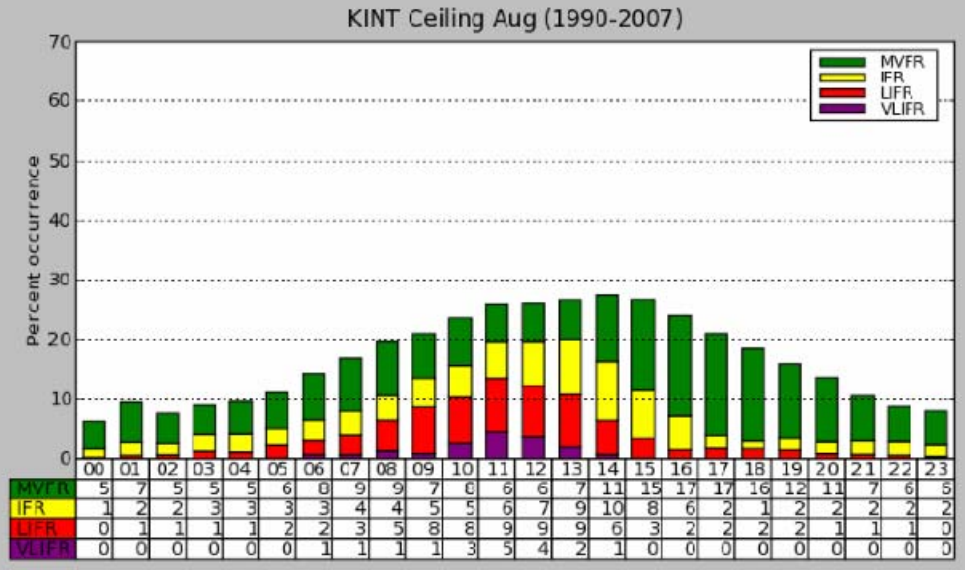
MVFR	24	18	18	20	18	21	25	29	30	35	35	38	42	41	35	31	28	24	24	23	21	22	23	24
IFR	3	3	3	1	1	1	2	3	4	6	10	27	20	13	10	7	4	4	3	3	2	2	2	2
LIFR	0	0	0	0	0	0	0	0	1	0	2	1	2	1	0	0	0	0	0	0	0	0	0	0
VLIFR	0	0	0	0	0	0	0	0	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0



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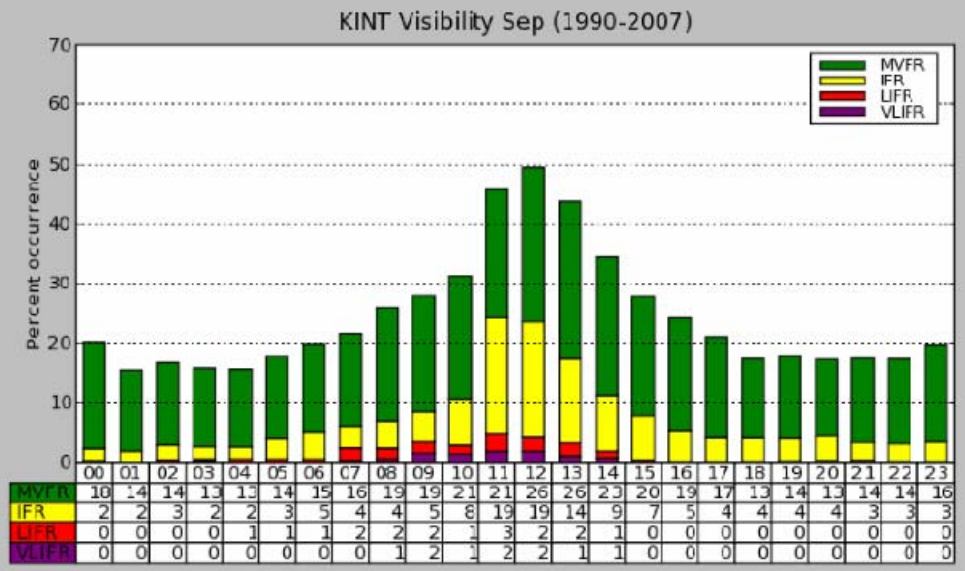
MVFR	5	7	5	5	5	6	8	9	9	7	8	6	6	7	11	15	17	17	16	12	11	7	6	5
IFR	1	2	2	3	3	3	3	4	4	5	5	6	7	9	10	8	6	2	1	2	2	2	2	2
LIFR	0	1	1	1	1	2	2	3	5	8	8	9	9	9	6	3	2	2	2	2	1	1	1	0
VLIFR	0	0	0	0	0	0	1	1	1	1	3	5	4	2	1	0	0	0	0	0	0	0	0	0

August contains some of the highest hourly percentages of IFR occurrence. 12z has a 30% or greater occurrence rate of IFR conditions. MVFR fog Approaches 70% at 11z and stays over 60% at 12z.

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

INT September Conditional Climatology



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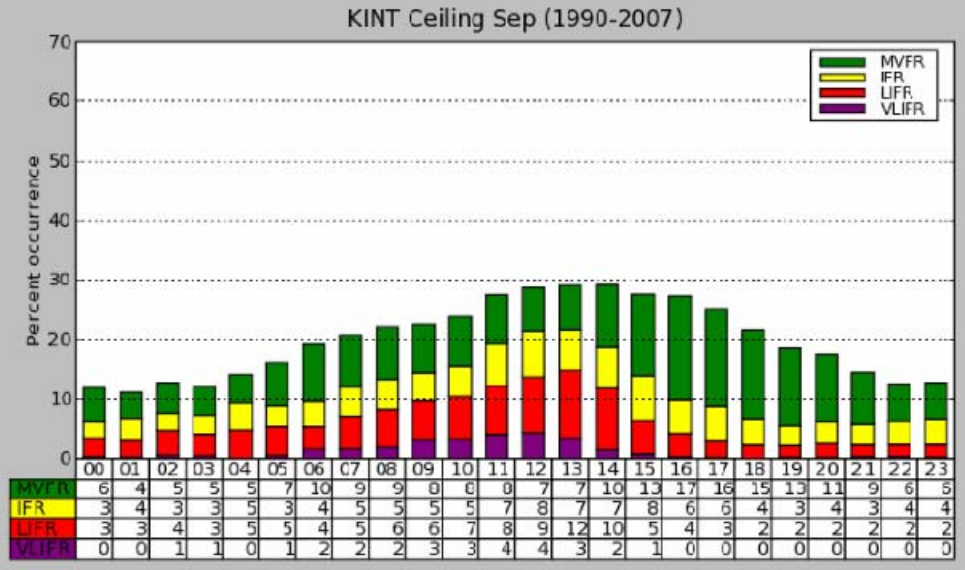
MVFR	10	14	14	13	13	14	15	16	19	19	21	21	26	26	23	20	19	17	13	14	13	14	14	16
IFR	2	2	3	2	2	3	5	4	4	5	8	19	19	14	9	7	5	4	4	4	4	3	3	3
LIFR	0	0	0	0	1	1	1	2	2	2	1	3	2	2	1	0	0	0	0	0	0	0	0	0
VLIFR	0	0	0	0	0	0	0	0	1	2	1	2	2	1	1	0	0	0	0	0	0	0	0	0



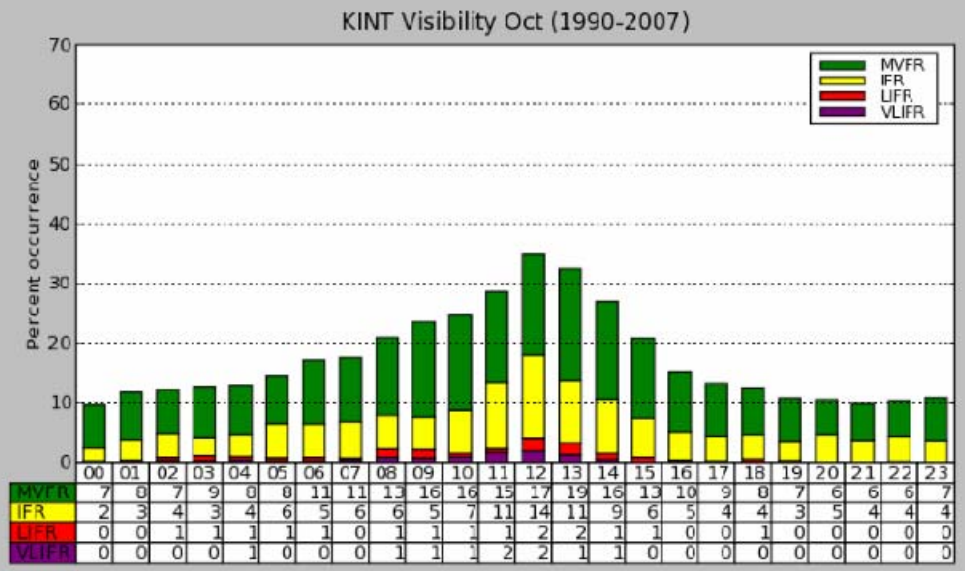
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
MVFR	6	4	5	5	5	7	10	9	9	9	8	8	7	7	10	13	17	16	15	13	11	9	6	5
IFR	3	4	3	3	5	3	4	5	5	5	5	7	8	7	7	8	6	6	4	3	4	3	4	4
LIFR	3	3	4	3	5	5	4	5	6	6	7	8	9	12	10	5	4	3	2	2	2	2	2	2
VLIFR	0	0	1	1	0	1	2	2	2	3	3	4	4	3	2	1	0	0	0	0	0	0	0	0

IFR fog still occurs 20 % of the time between 11z-12z. MVFR conditions decline from rates seen in August, but still occur nearly 50 % of the time at 12z.

Just like in August, September IFR occurrences reach or exceed 20 % between 11z-13z, with over a 10 % chance of ceilings lowering to less than 500 ft from 10z-14z.

The low occurrence rate during the daylight and evening hours continues to be noted.

INT October Conditional Climatology



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LIFR	0	0	1	1	1	1	1	0	1	1	1	1	2	2	1	1	0	0	1	0	0	0	0	0
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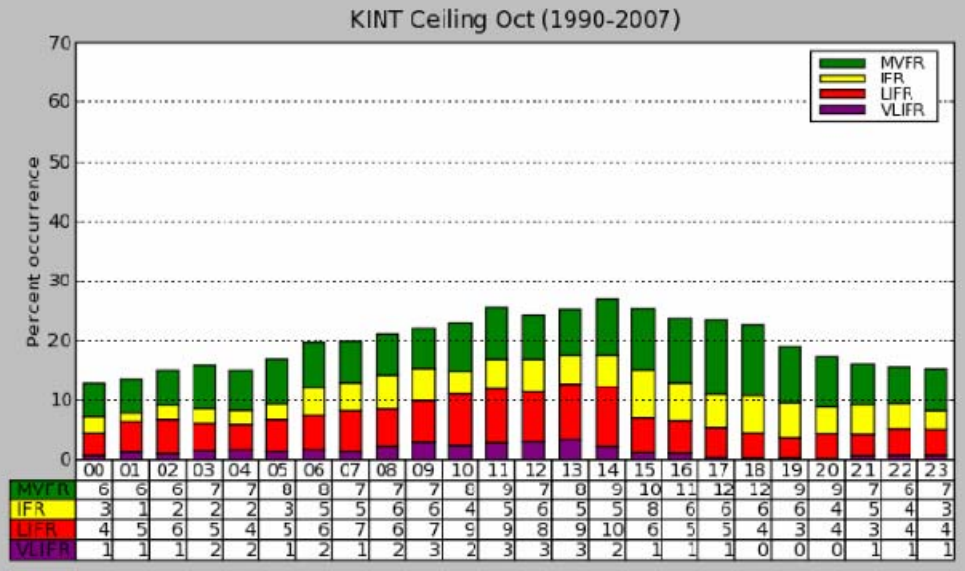

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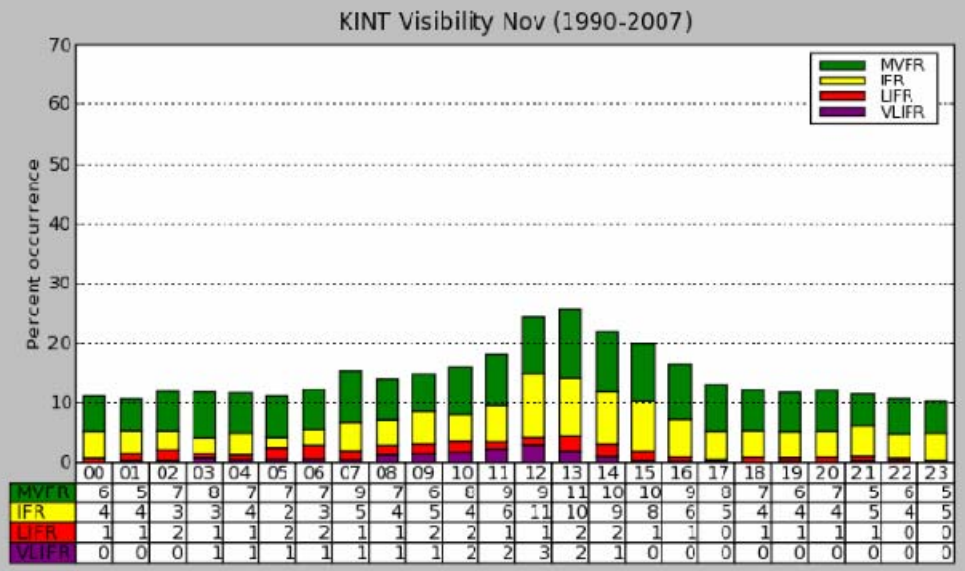
IFR	3	1	2	2	2	3	5	5	6	6	4	5	6	5	5	8	6	6	6	6	4	5	4	3
LIFR	4	5	6	5	4	5	6	7	6	7	9	9	8	9	10	6	5	5	4	3	4	3	4	4
VLIFR	1	1	1	2	2	1	2	1	2	3	2	3	3	3	2	1	1	1	0	0	0	1	1	1

Fog conditions overall decline in frequency compared to July-September. IFR fog is still diurnal, with the 10% or greater occurrence rates found from 11-14z.

With seasonal transition, we see higher IFR occurrences spread out over more hours of the day. A relative min in the late afternoon and evening is still observed.

INT November Conditional Climatology



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IFR	4	4	3	3	4	2	3	5	4	5	4	6	11	10	9	8	6	5	4	4	4	5	4	5
LIFR	1	1	2	1	1	2	2	1	1	2	2	1	1	2	2	1	1	0	1	1	1	1	0	0
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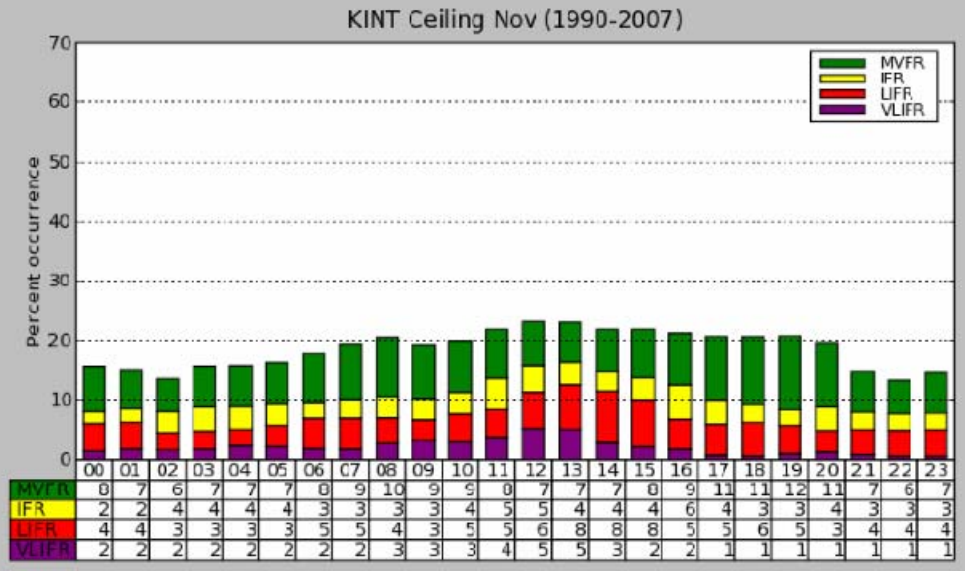

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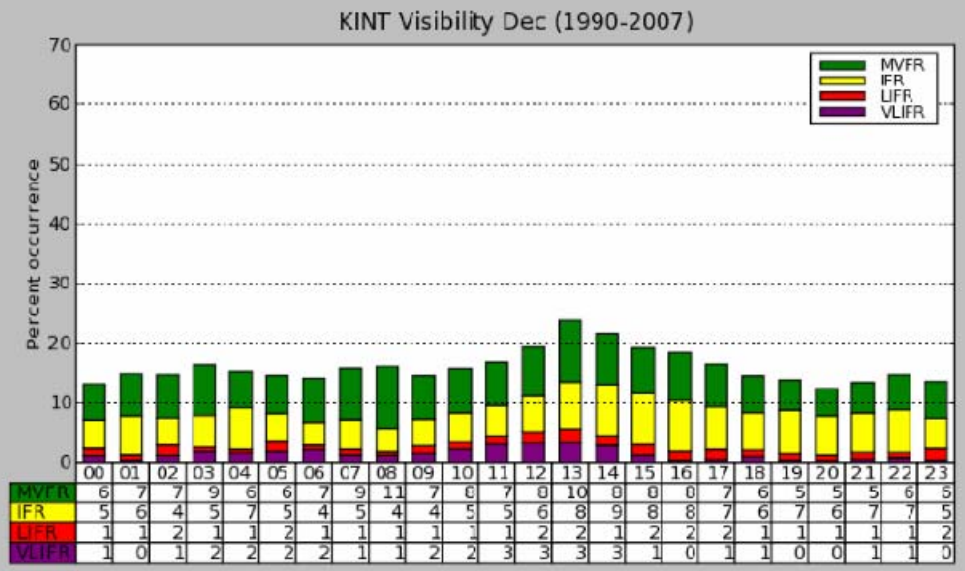
MVFR	8	7	6	7	7	7	8	9	10	9	9	8	7	7	7	8	9	11	11	12	11	7	6	7
IFR	2	2	4	4	4	4	3	3	3	3	4	5	5	4	4	4	6	4	3	3	4	3	3	3
LIFR	4	4	3	3	3	3	5	5	4	3	5	5	6	8	8	8	5	5	6	5	3	4	4	4
VLIFR	2	2	2	2	2	2	2	2	3	3	3	4	5	5	3	2	2	1	1	1	1	1	1	1

10 % or greater IFR occurrence can be found in the 12z-14z time frame in November.

IFR ceiling frequencies reach or exceed 10 % from 06z-17z, with the peak from 11z-16z.

INT December Conditional Climatology



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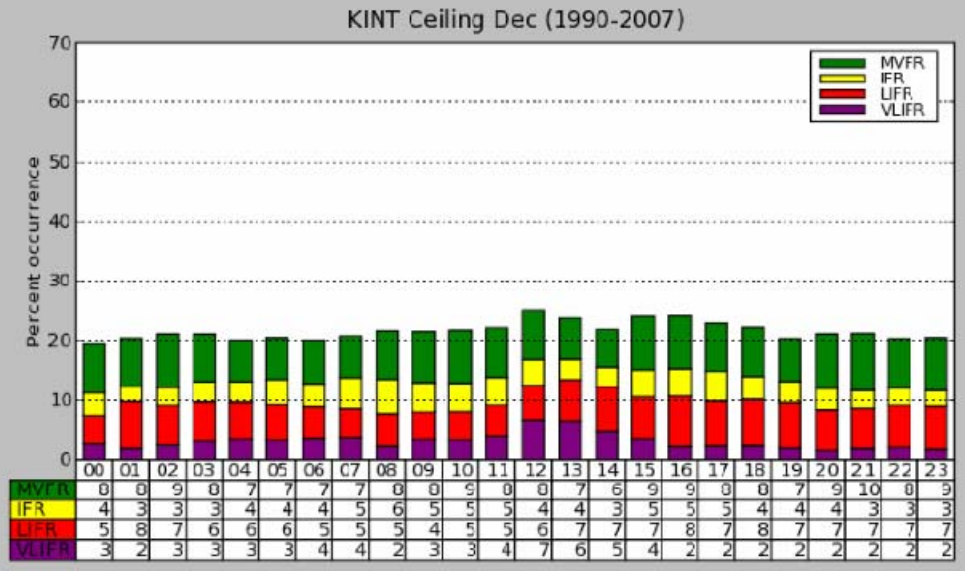
MVFR	6	7	7	9	6	6	7	9	11	7	8	7	8	10	8	8	8	7	6	5	5	5	6	5
IFR	5	6	4	5	7	5	4	5	4	4	5	5	6	8	9	8	8	7	6	7	6	7	7	5
LIFR	1	1	2	1	1	2	1	1	1	1	1	1	2	2	1	2	2	2	1	1	1	1	1	2
VLIFR	1	0	1	2	2	2	2	1	1	2	2	3	3	3	3	1	0	1	1	0	0	1	1	0



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MVFR	0	0	9	0	7	7	7	7	0	0	9	0	0	7	6	9	9	0	0	7	9	10	0	9
IFR	4	3	3	3	4	4	4	5	6	5	5	5	4	4	3	5	5	5	4	4	4	3	3	3
LIFR	5	8	7	6	6	6	5	5	5	4	5	5	6	7	7	7	8	7	8	7	7	7	7	7
VLIFR	3	2	3	3	3	3	4	4	2	3	3	4	7	6	5	4	2	2	2	2	2	2	2	2

A discernable peak in IFR occurrence is not as apparent during the month of December.

As cold air damming season commences, IFR occurrences approach or exceed 10% at all hours of the day during December.

Key Findings

- The conditional climatology database for INT only goes back to 1990 (compared to 1973 at GSO).
- As at GSO, 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.