

```
In [1]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import matplotlib.ticker as tic
```

```
In [2]: df=pd.read_csv("cleaned_rainfall")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7
...	...	...	...	...	...	...	...	...	...	...	...	...	...
4111	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4
4112	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9
4113	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8
4114	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2
4115	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4

4116 rows × 20 columns



```
In [3]: df["SUBDIVISION"].value_counts()
```

```
Out[3]: BIHAR 115
CHHATTISGARH 115
UTTARAKHAND 115
SOUTH INTERIOR KARNATAKA 115
MATATHWADA 115
GUJARAT REGION 115
KERALA 115
WEST UTTAR PRADESH 115
NORTH INTERIOR KARNATAKA 115
HIMACHAL PRADESH 115
COASTAL KARNATAKA 115
WEST RAJASTHAN 115
SUB HIMALAYAN WEST BENGAL & SIKKIM 115
MADHYA MAHARASHTRA 115
TAMIL NADU 115
JAMMU & KASHMIR 115
ORISSA 115
WEST MADHYA PRADESH 115
SAURASHTRA & KUTCH 115
VIDARBHA 115
JHARKHAND 115
COASTAL ANDHRA PRADESH 115
KONKAN & GOA 115
NAGA MANI MIZO TRIPURA 115
EAST MADHYA PRADESH 115
EAST RAJASTHAN 115
TELANGANA 115
ASSAM & MEGHALAYA 115
GANGETIC WEST BENGAL 115
EAST UTTAR PRADESH 115
PUNJAB 115
HARYANA DELHI & CHANDIGARH 115
RAYALSEEMA 115
LAKSHADWEEP 114
ANDAMAN & NICOBAR ISLANDS 110
ARUNACHAL PRADESH 97
Name: SUBDIVISION, dtype: int64
```

## RAYALSEEMA

In [4]:

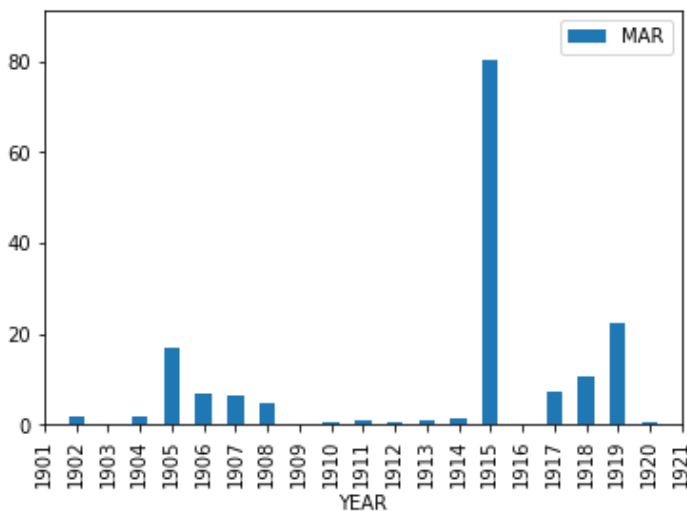
dat1=df[df["SUBDIVISION"]=="RAYALSEEMA"]  
dat1

Out[4]:

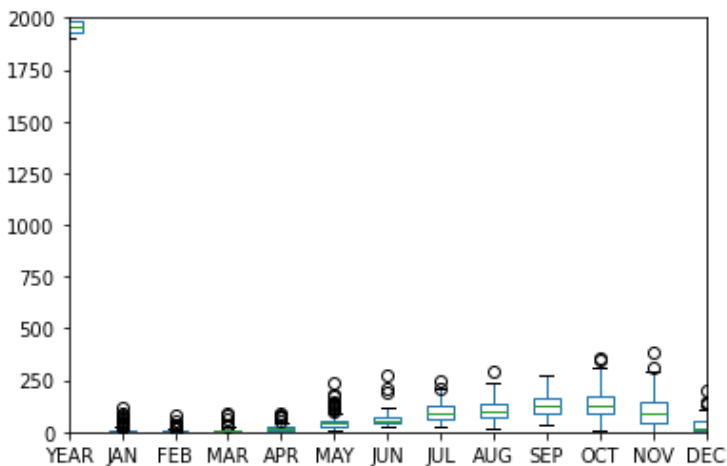
	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
3312	3312	RAYALSEEMA	1901	7.0	50.2	0.0	12.1	38.9	53.0	73.4	60.3	109.0	81.6	137.1
3313	3313	RAYALSEEMA	1902	10.0	0.2	1.7	11.0	36.8	73.6	41.3	148.3	181.7	188.5	88.9
3314	3314	RAYALSEEMA	1903	30.0	0.1	0.0	3.6	80.5	67.5	127.5	140.6	219.7	95.3	289.4
3315	3315	RAYALSEEMA	1904	14.8	0.0	1.7	7.1	58.8	39.8	75.1	19.4	84.7	111.5	4.4
3316	3316	RAYALSEEMA	1905	6.5	6.8	17.0	18.3	44.2	66.1	50.9	219.3	36.5	180.2	55.4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3422	3422	RAYALSEEMA	2011	0.8	12.1	0.0	34.6	33.0	44.5	128.9	163.6	71.2	107.5	106.9
3423	3423	RAYALSEEMA	2012	2.7	0.0	2.5	32.7	38.8	47.0	139.7	120.0	69.5	113.7	86.6
3424	3424	RAYALSEEMA	2013	1.3	30.6	11.5	26.8	38.9	73.8	95.7	110.3	163.2	169.3	38.6
3425	3425	RAYALSEEMA	2014	0.2	0.7	12.5	5.1	46.7	66.3	68.7	115.1	81.4	104.6	37.8
3426	3426	RAYALSEEMA	2015	1.9	0.0	13.4	73.4	39.7	73.0	43.1	123.6	136.3	106.7	383.8

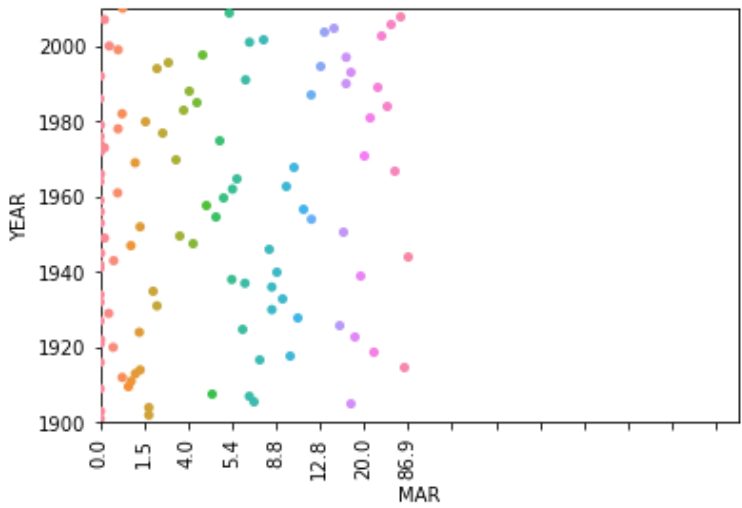
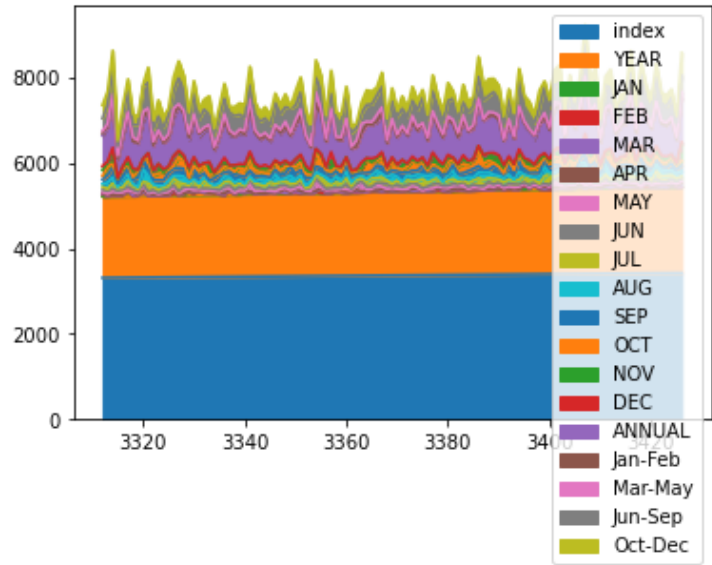
115 rows × 20 columns

```
In [5]: dat1.plot.bar("YEAR", "MAR")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR", "MAR")
sns.stripplot(x=dat1["MAR"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["MAR"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=10))
plt.show()
dat1.plot.hist()
```

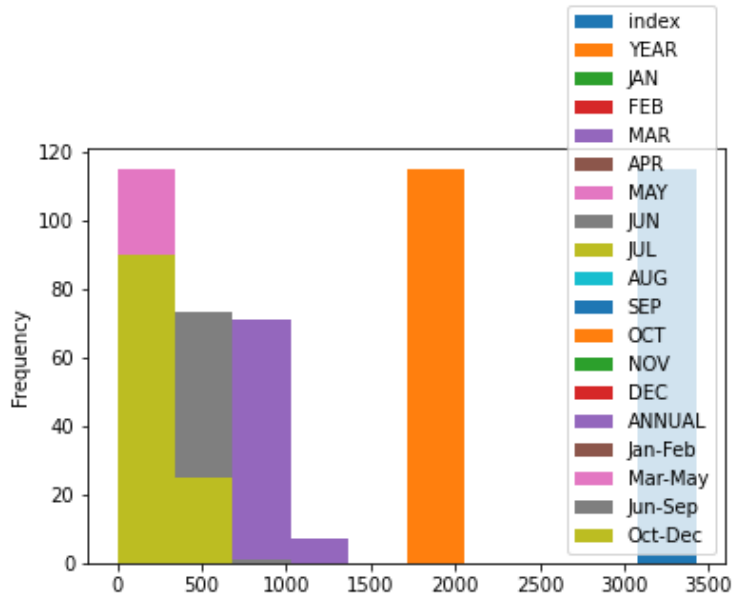


<Figure size 4320x2160 with 0 Axes>

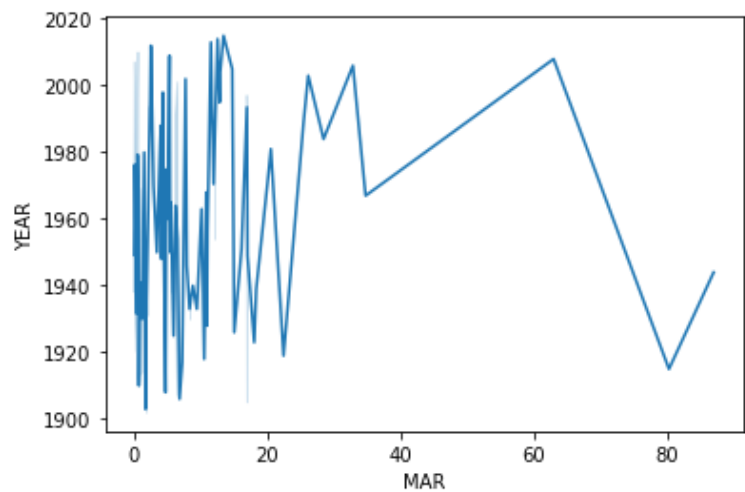




Out[5]: <AxesSubplot:ylabel='Frequency'>



```
In [6]: sns.lineplot(x=dat1["MAR"],y=dat1["YEAR"])
plt.show()
```



CHHATTISGARH

```
In [7]: dat2=df[df["SUBDIVISION"]=="CHHATTISGARH"]
dat2
```

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
2967	2967	CHHATTISGARH	1901	48.9	116.5	27.8	5.5	18.4	101.6	381.0	476.7	182.8	27.3
2968	2968	CHHATTISGARH	1902	0.6	6.5	0.4	13.9	10.3	37.2	403.8	236.6	198.1	4.7
2969	2969	CHHATTISGARH	1903	6.2	13.9	0.4	6.8	51.1	110.7	365.9	396.0	212.0	168.0
2970	2970	CHHATTISGARH	1904	0.0	8.6	32.3	0.2	77.5	369.5	303.6	483.6	86.8	129.3
2971	2971	CHHATTISGARH	1905	50.3	22.6	19.0	24.6	31.8	40.4	443.7	270.8	338.8	8.9
...	...	...	...	...	...	...	...	...	...	...	...	...	...
3077	3077	CHHATTISGARH	2011	0.3	11.5	2.6	35.0	16.8	183.5	272.6	379.8	382.2	15.5
3078	3078	CHHATTISGARH	2012	36.6	4.8	1.1	14.9	9.4	147.3	430.6	442.2	245.3	19.8
3079	3079	CHHATTISGARH	2013	2.8	19.7	4.9	45.8	5.7	263.6	418.8	336.6	140.9	180.9
3080	3080	CHHATTISGARH	2014	2.3	29.0	21.4	17.3	25.0	104.9	416.7	327.7	252.7	77.9
3081	3081	CHHATTISGARH	2015	15.8	1.2	21.2	37.0	13.0	257.6	248.6	286.6	216.9	17.7

115 rows × 20 columns

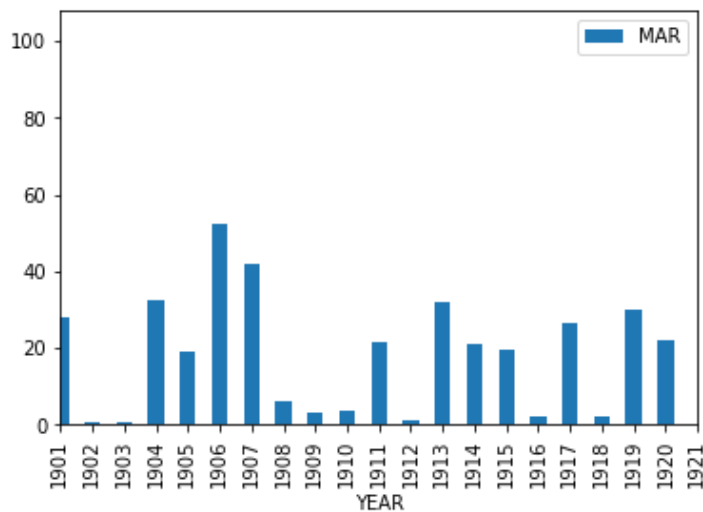


In [8]:

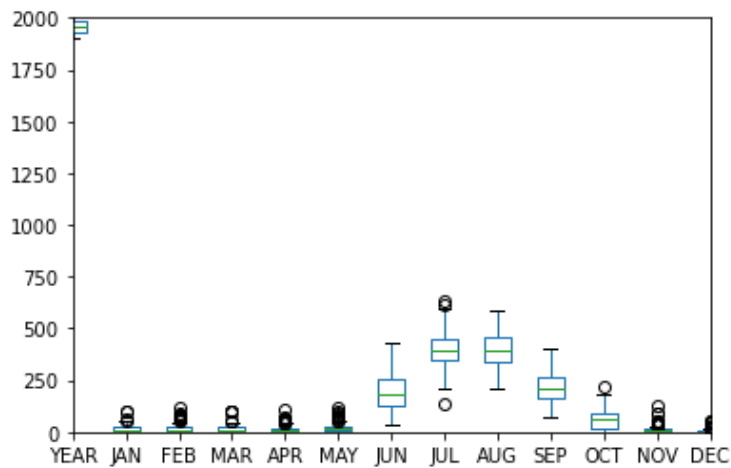
```

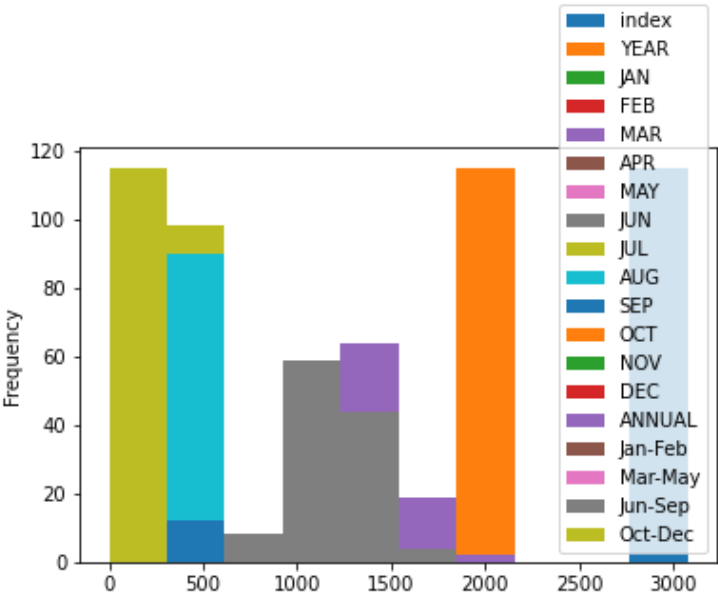
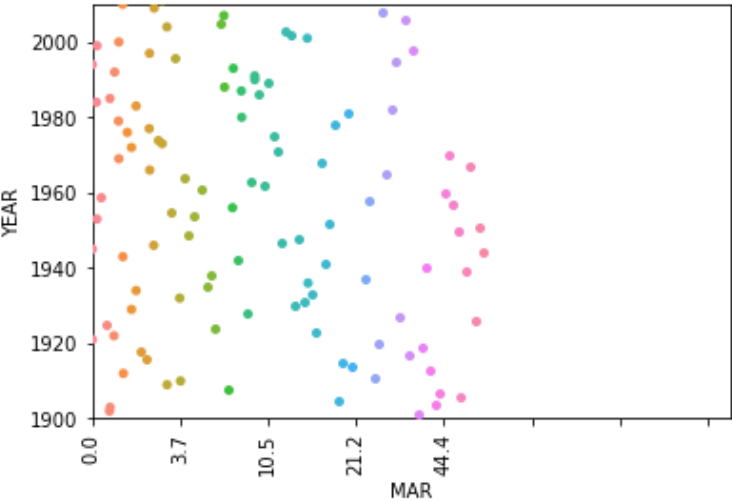
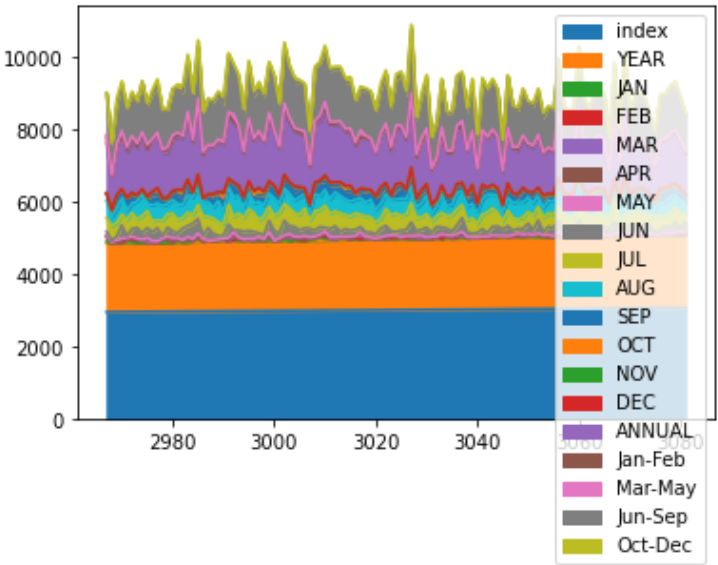
dat2.plot.bar("YEAR", "MAR")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat2.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat2.plot.area()
dat2.plot.scatter("YEAR", "MAR")
sns.stripplot(x=dat2["MAR"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["MAR"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()

```



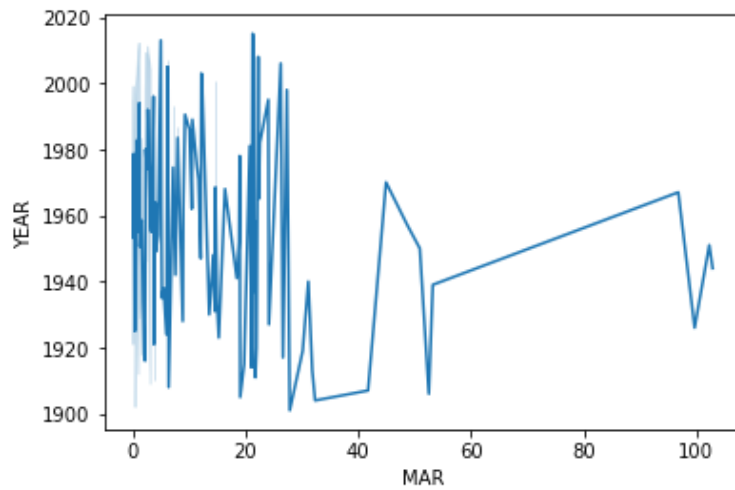
&lt;Figure size 4320x2160 with 0 Axes&gt;







```
In [9]: sns.lineplot(x=dat2["MAR"],y=dat2["YEAR"])  
plt.show()
```



```
In [1]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import matplotlib.ticker as tic
```

```
In [2]: df=pd.read_csv("cleaned_rainfall")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7
...	...	...	...	...	...	...	...	...	...	...	...	...	...
4111	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4
4112	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9
4113	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8
4114	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2
4115	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4

4116 rows × 20 columns



```
In [3]: df["SUBDIVISION"].value_counts()
```

```
Out[3]: HIMACHAL PRADESH      115
        SAURASHTRA & KUTCH    115
        EAST UTTAR PRADESH    115
        NAGA MANI MIZO TRIPURA 115
        NORTH INTERIOR KARNATAKA 115
        ASSAM & MEGHALAYA      115
        WEST MADHYA PRADESH    115
        PUNJAB                 115
        MADHYA MAHARASHTRA     115
        GANGETIC WEST BENGAL   115
        COASTAL KARNATAKA      115
        JAMMU & KASHMIR        115
        COASTAL ANDHRA PRADESH 115
        SOUTH INTERIOR KARNATAKA 115
        ORISSA                 115
        TELANGANA              115
        BIHAR                  115
        KONKAN & GOA           115
        UTTARAKHAND            115
        EAST RAJASTHAN          115
        WEST RAJASTHAN          115
        GUJARAT REGION         115
        KERALA                 115
        EAST MADHYA PRADESH     115
        MATATHWADA             115
        RAYALSEEMA             115
        VIDARBHA               115
        CHHATTISGARH           115
        TAMIL NADU             115
        HARYANA DELHI & CHANDIGARH 115
        JHARKHAND              115
        SUB HIMALAYAN WEST BENGAL & SIKKIM 115
        WEST UTTAR PRADESH      115
        LAKSHADWEEP            114
        ANDAMAN & NICOBAR ISLANDS 110
        ARUNACHAL PRADESH       97
        Name: SUBDIVISION, dtype: int64
```

## MATATHWADA

```
In [4]: dat1=df[df["SUBDIVISION"]=="MATATHWADA"]
        dat1
```

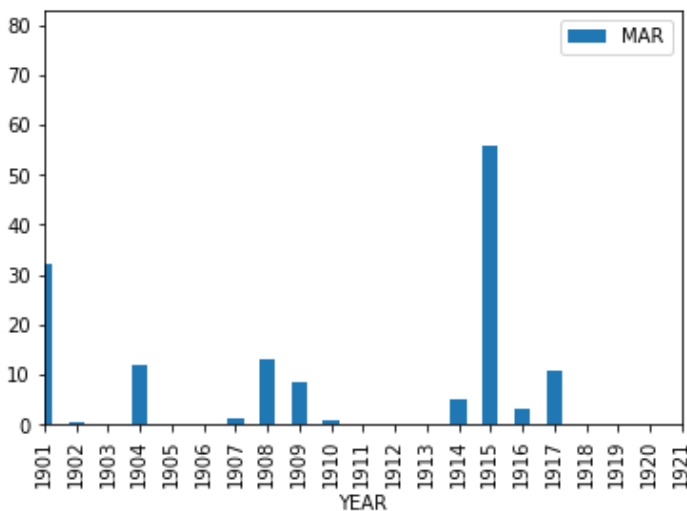
Out[4]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NO
2737	2737	MATATHWADA	1901	15.8	3.3	32.1	48.5	26.5	193.1	184.1	249.8	74.0	81.6	0
2738	2738	MATATHWADA	1902	1.3	0.0	0.4	7.2	0.8	52.4	120.9	85.2	273.3	61.3	84
2739	2739	MATATHWADA	1903	2.6	0.8	0.0	1.7	58.3	104.4	264.2	281.9	173.3	139.9	0
2740	2740	MATATHWADA	1904	0.0	0.9	12.1	0.3	7.2	79.2	118.4	57.3	339.0	76.2	0
2741	2741	MATATHWADA	1905	1.3	2.0	0.0	6.6	4.8	84.6	94.8	137.6	157.8	15.4	0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2847	2847	MATATHWADA	2011	0.0	3.8	0.7	3.5	3.1	79.2	230.1	228.5	90.0	24.8	0
2848	2848	MATATHWADA	2012	0.0	0.0	0.0	0.6	2.3	72.2	161.1	101.4	120.0	68.8	0
2849	2849	MATATHWADA	2013	1.5	9.4	2.6	7.9	6.4	160.9	293.4	136.9	154.1	94.3	7
2850	2850	MATATHWADA	2014	1.4	13.4	79.0	11.9	7.0	30.4	105.0	178.9	84.5	14.2	19
2851	2851	MATATHWADA	2015	10.1	1.6	32.0	39.6	12.3	118.3	27.4	112.2	154.3	19.5	4

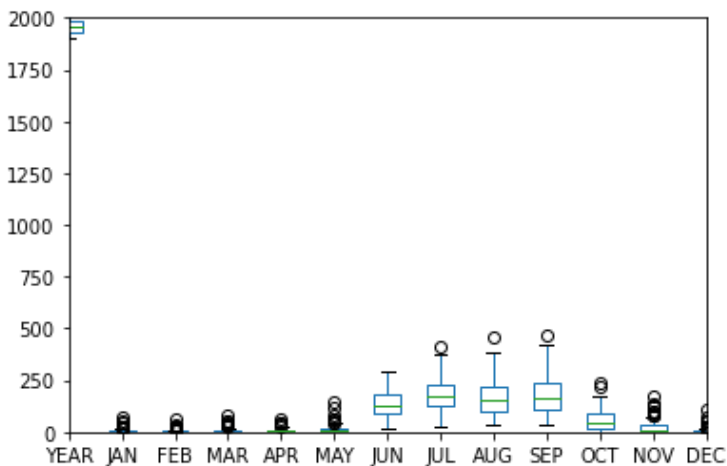
115 rows × 20 columns

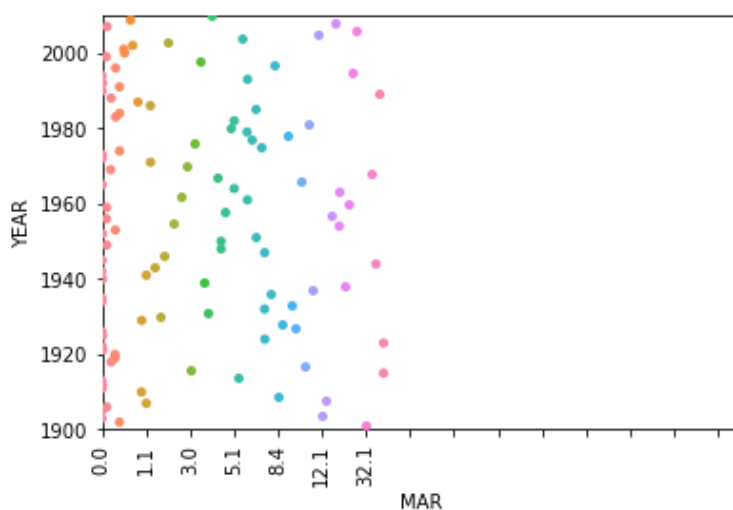
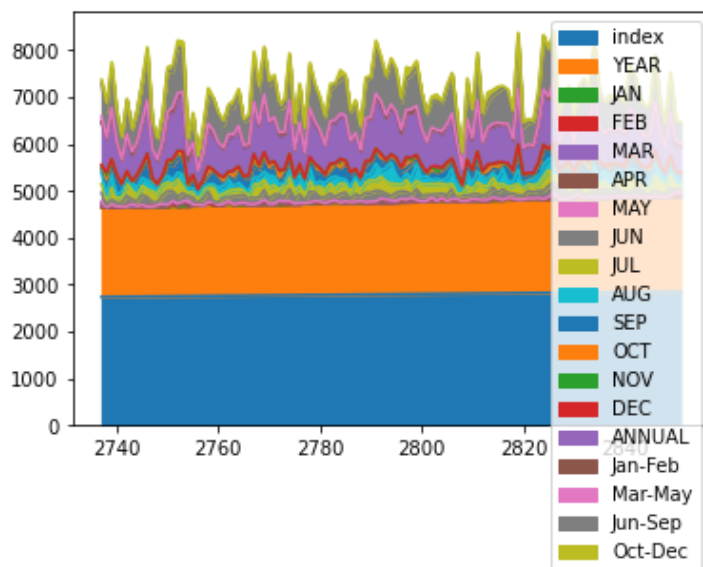


```
In [5]: dat1.plot.bar("YEAR", "MAR")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR", "MAR")
sns.stripplot(x=dat1["MAR"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["MAR"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=10))
plt.show()
dat1.plot.hist()
```

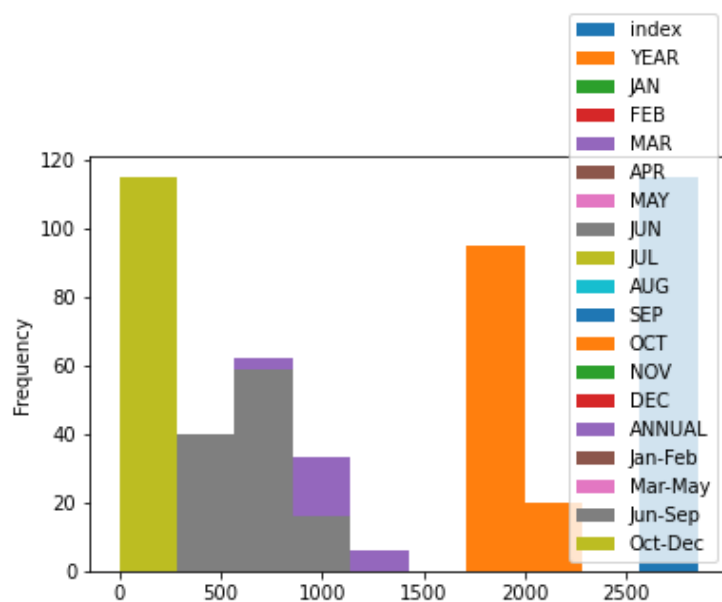


<Figure size 4320x2160 with 0 Axes>

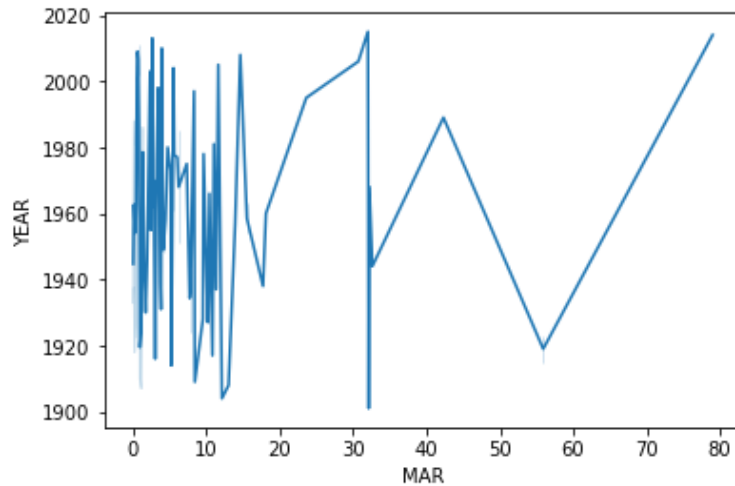




Out[5]: <AxesSubplot:ylabel='Frequency'>



```
In [6]: sns.lineplot(x=dat1["MAR"],y=dat1["YEAR"])  
plt.show()
```



## WEST MADHYA PRADESH

In [7]:

dat2=df[df["SUBDIVISION"]=="WEST MADHYA PRADESH"]  
dat2

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
2047	2047	WEST MADHYA PRADESH	1901	25.8	5.8	5.8	2.8	2.1	41.2	228.9	349.9	47.9	5.6	0.0
2048	2048	WEST MADHYA PRADESH	1902	22.1	8.4	0.0	2.0	5.9	35.9	401.9	179.4	194.1	37.9	10.0
2049	2049	WEST MADHYA PRADESH	1903	5.3	0.0	0.0	0.0	22.3	50.6	304.9	261.1	250.2	55.1	0.0
2050	2050	WEST MADHYA PRADESH	1904	3.2	15.5	14.8	0.0	12.0	96.6	273.0	218.6	125.9	3.3	1.8
2051	2051	WEST MADHYA PRADESH	1905	3.5	4.4	1.1	0.8	3.0	36.1	326.3	137.6	183.5	0.3	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2157	2157	WEST MADHYA PRADESH	2011	0.0	1.7	0.1	1.8	3.6	241.5	306.7	343.3	165.0	0.2	0.0
2158	2158	WEST MADHYA PRADESH	2012	6.2	0.0	0.0	0.9	3.1	48.2	439.2	341.2	194.3	2.1	0.0
2159	2159	WEST MADHYA PRADESH	2013	1.7	31.1	8.5	2.8	0.4	263.7	485.1	432.6	98.9	68.7	0.3
2160	2160	WEST MADHYA PRADESH	2014	25.6	34.4	4.6	1.4	1.4	30.6	337.4	211.0	192.6	7.0	3.0
2161	2161	WEST MADHYA PRADESH	2015	40.2	6.4	53.5	13.3	2.0	154.1	428.2	276.6	55.6	11.0	0.3

115 rows × 20 columns



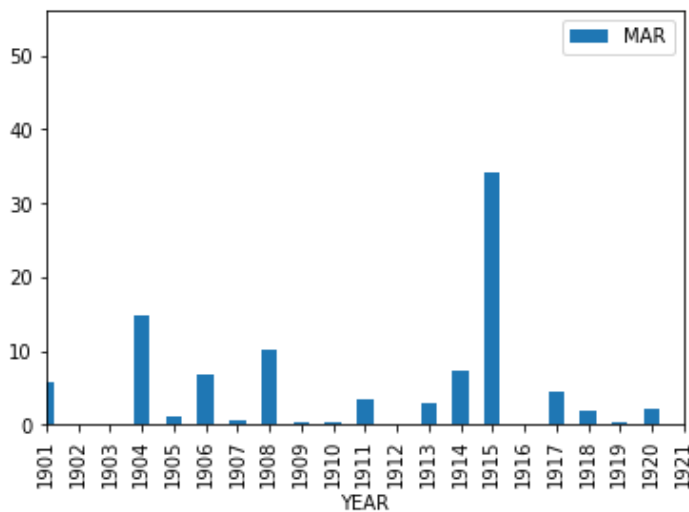


In [8]:

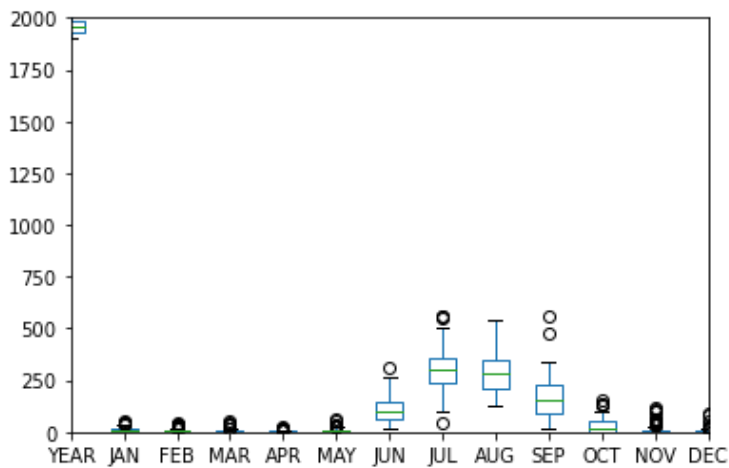
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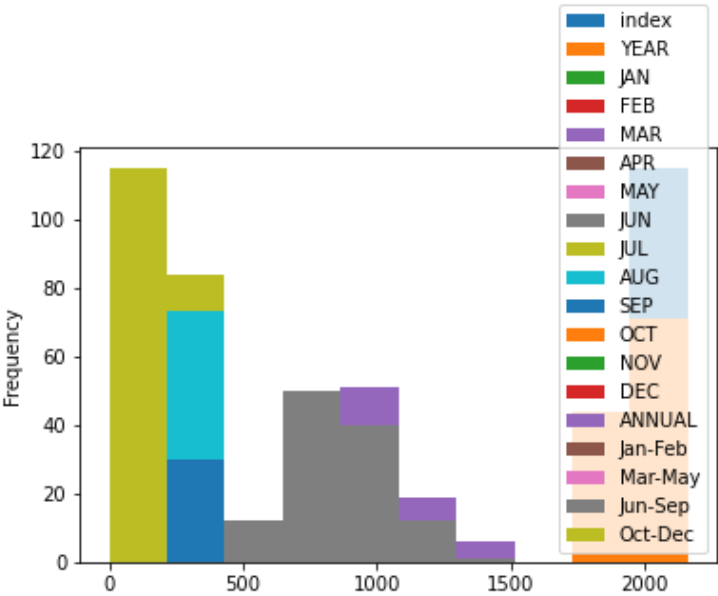
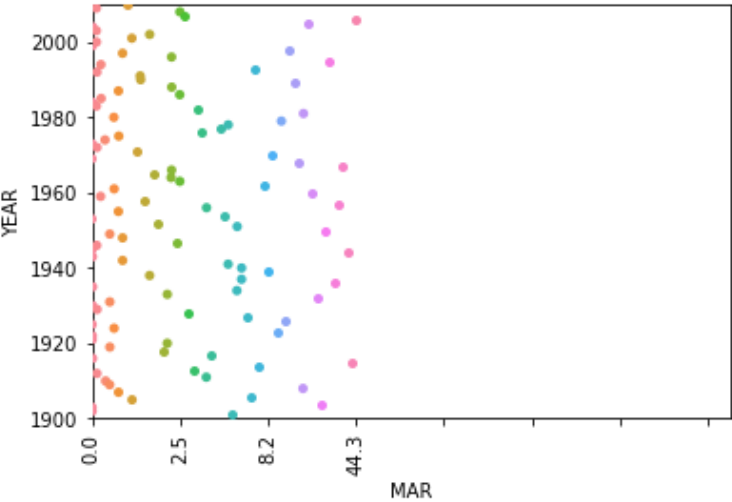
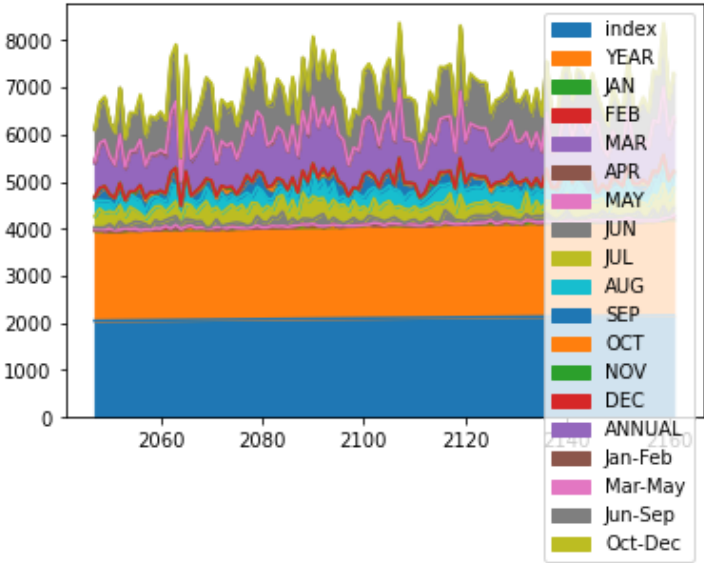
dat2.plot.bar("YEAR", "MAR")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat2.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat2.plot.area()
dat2.plot.scatter("YEAR", "MAR")
sns.stripplot(x=dat2["MAR"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["MAR"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()

```

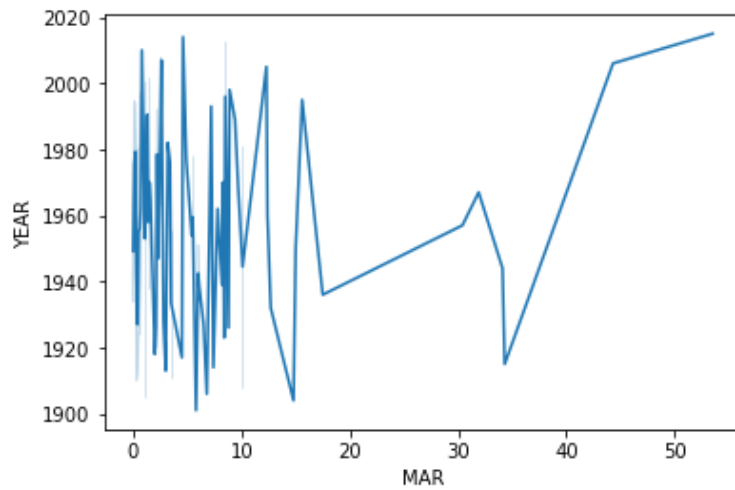


&lt;Figure size 4320x2160 with 0 Axes&gt;





```
In [9]: sns.lineplot(x=dat2["MAR"],y=dat2["YEAR"])  
plt.show()
```



```
In [1]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import matplotlib.ticker as tic
```

```
In [2]: df=pd.read_csv("cleaned_rainfall")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7
...	...	...	...	...	...	...	...	...	...	...	...	...	...
4111	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4
4112	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9
4113	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8
4114	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2
4115	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4

4116 rows × 20 columns



```
In [3]: df["SUBDIVISION"].value_counts()
```

```
Out[3]: EAST MADHYA PRADESH      115
        MATATHWADA              115
        CHHATTISGARH            115
        GUJARAT REGION          115
        WEST UTTAR PRADESH      115
        ORISSA                  115
        HARYANA DELHI & CHANDIGARH 115
        PUNJAB                  115
        KERALA                  115
        COASTAL ANDHRA PRADESH   115
        BIHAR                   115
        COASTAL KARNATAKA        115
        NAGA MANI MIZO TRIPURA  115
        EAST UTTAR PRADESH      115
        EAST RAJASTHAN          115
        JAMMU & KASHMIR         115
        HIMACHAL PRADESH        115
        SOUTH INTERIOR KARNATAKA 115
        ASSAM & MEGHALAYA       115
        UTTARAKHAND             115
        SAURASHTRA & KUTCH      115
        VIDARBHA                115
        WEST RAJASTHAN          115
        TELANGANA               115
        GANGETIC WEST BENGAL     115
        MADHYA MAHARASHTRA      115
        TAMIL NADU              115
        SUB HIMALAYAN WEST BENGAL & SIKKIM 115
        KONKAN & GOA            115
        RAYALSEEMA              115
        JHARKHAND               115
        NORTH INTERIOR KARNATAKA 115
        WEST MADHYA PRADESH     115
        LAKSHADWEEP             114
        ANDAMAN & NICOBAR ISLANDS 110
        ARUNACHAL PRADESH       97
        Name: SUBDIVISION, dtype: int64
```

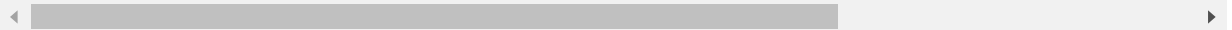
## NAGA MANI MIZO TRIPURA

```
In [4]: dat1=df[df["SUBDIVISION"]=="NAGA MANI MIZO TRIPURA"]
        dat1
```

Out[4]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NO
<b>322</b>	322	NAGA MANI MIZO TRIPURA	1901	11.7	18.1	29.4	206.2	124.0	443.3	331.4	466.0	304.1	166.7	67
<b>323</b>	323	NAGA MANI MIZO TRIPURA	1902	4.8	0.5	36.3	297.8	215.5	480.1	392.4	312.8	318.7	102.4	8
<b>324</b>	324	NAGA MANI MIZO TRIPURA	1903	6.5	40.5	139.8	45.5	159.9	458.6	300.2	470.6	366.1	166.4	76
<b>325</b>	325	NAGA MANI MIZO TRIPURA	1904	2.3	46.9	47.5	290.3	230.5	455.3	423.5	423.6	375.8	128.9	90
<b>326</b>	326	NAGA MANI MIZO TRIPURA	1905	9.1	35.3	306.5	161.7	193.6	339.7	450.1	429.9	320.1	246.4	8
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>432</b>	432	NAGA MANI MIZO TRIPURA	2011	12.6	3.6	51.4	81.1	334.9	374.2	313.3	367.6	258.3	92.6	2
<b>433</b>	433	NAGA MANI MIZO TRIPURA	2012	24.5	10.2	20.3	243.5	163.5	396.2	280.1	342.7	248.7	160.9	32
<b>434</b>	434	NAGA MANI MIZO TRIPURA	2013	0.2	5.7	19.7	60.3	348.9	206.6	255.9	291.3	241.4	125.6	0
<b>435</b>	435	NAGA MANI MIZO TRIPURA	2014	1.2	21.0	25.4	49.6	192.5	268.3	295.7	372.3	300.9	69.6	3
<b>436</b>	436	NAGA MANI MIZO TRIPURA	2015	14.4	14.2	21.6	253.5	198.3	283.9	413.6	334.2	255.9	118.7	3

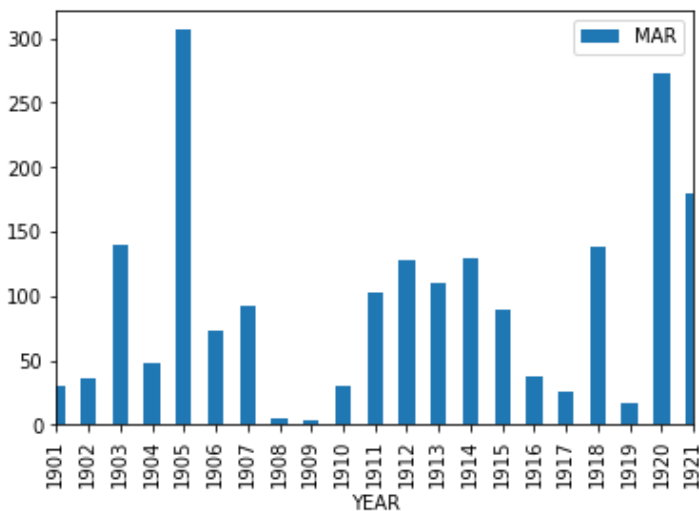
115 rows × 20 columns



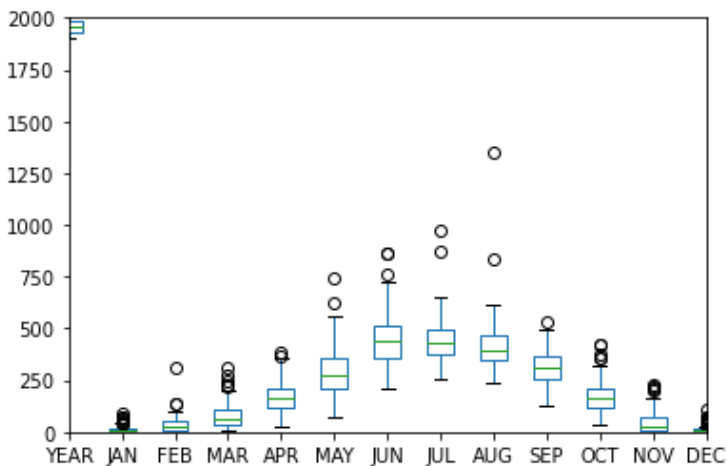
```

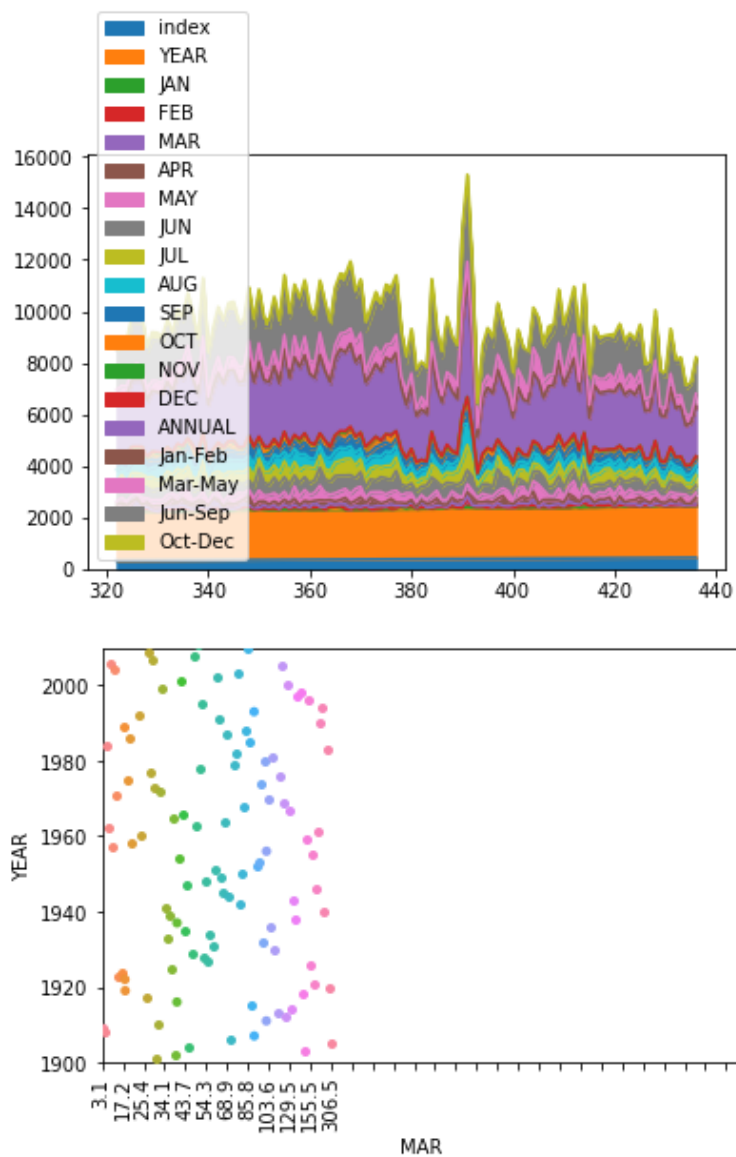
In [5]: dat1.plot.bar("YEAR", "MAR")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR", "MAR")
sns.stripplot(x=dat1["MAR"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["MAR"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=10))
plt.show()
dat1.plot.hist()

```

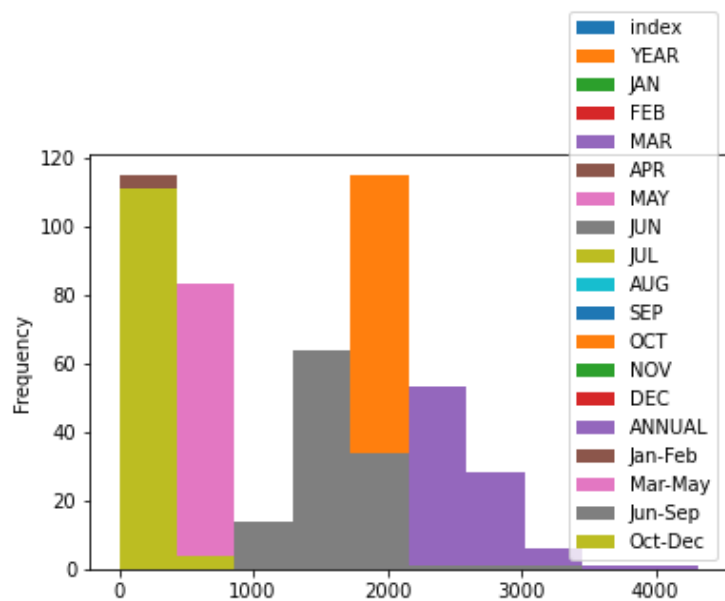


<Figure size 4320x2160 with 0 Axes>



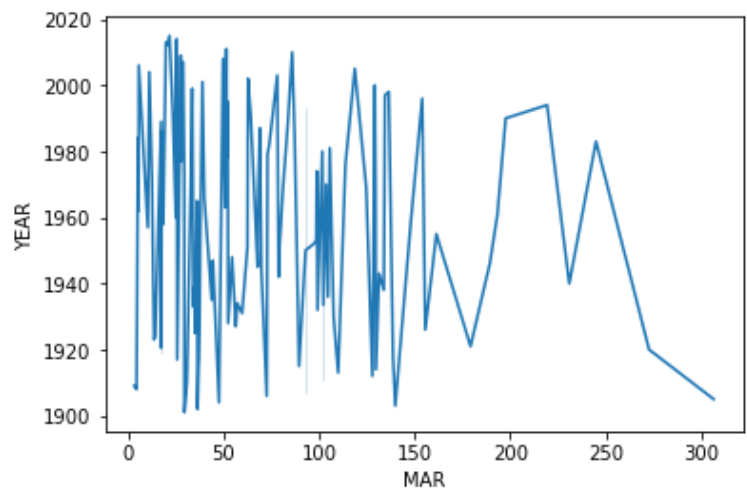


Out[5]: <AxesSubplot:ylabel='Frequency'>





```
In [6]: sns.lineplot(x=dat1["MAR"],y=dat1["YEAR"])
plt.show()
```



# HIMACHAL PRADESH

```
In [7]: dat2=df[df["SUBDIVISION"]=="HIMACHAL PRADESH"]
dat2
```

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1587	1587	HIMACHAL PRADESH	1901	137.8	174.5	75.0	19.2	89.6	32.7	280.5	459.7	53.0	3.9	0.0
1588	1588	HIMACHAL PRADESH	1902	6.5	27.0	104.4	76.2	61.3	78.8	258.6	199.3	113.4	23.6	0.0
1589	1589	HIMACHAL PRADESH	1903	76.5	21.4	213.7	25.4	54.7	32.2	157.7	256.5	107.9	5.8	0.0
1590	1590	HIMACHAL PRADESH	1904	79.3	22.4	131.7	48.0	90.3	33.1	241.1	184.3	56.4	51.6	1.0
1591	1591	HIMACHAL PRADESH	1905	81.3	76.8	160.2	39.3	50.4	43.6	191.1	132.8	119.1	0.3	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1697	1697	HIMACHAL PRADESH	2011	43.9	97.4	49.7	62.4	45.1	118.3	177.7	380.2	120.3	6.0	0.0
1698	1698	HIMACHAL PRADESH	2012	92.3	51.3	28.4	55.9	9.4	31.1	241.5	280.6	133.1	3.1	0.0
1699	1699	HIMACHAL PRADESH	2013	79.9	182.6	76.6	28.9	32.6	233.6	208.8	240.0	65.8	21.8	1.0
1700	1700	HIMACHAL PRADESH	2014	69.6	124.9	125.2	60.6	68.9	51.7	203.6	146.7	84.6	19.3	0.0
1701	1701	HIMACHAL PRADESH	2015	67.2	156.6	192.5	84.9	45.0	85.8	249.9	195.9	75.5	17.7	1.0

115 rows × 20 columns

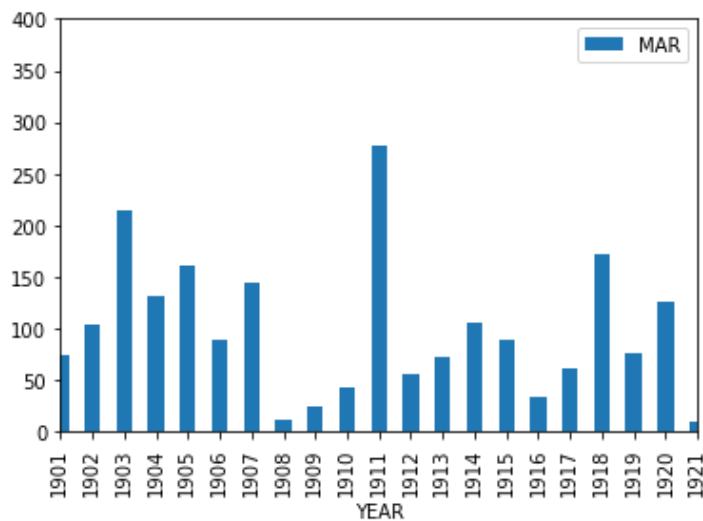


In [8]:

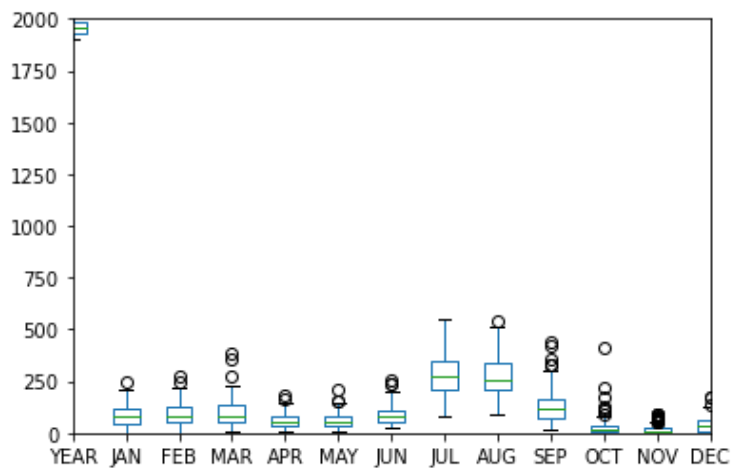
```

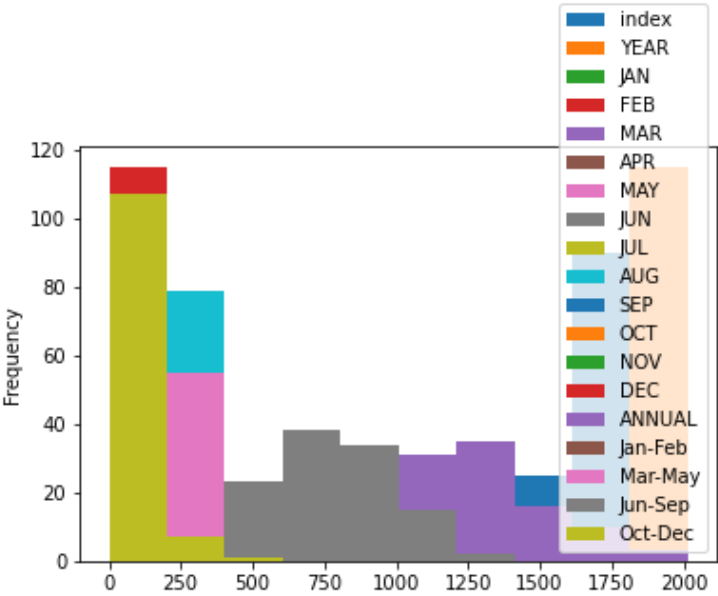
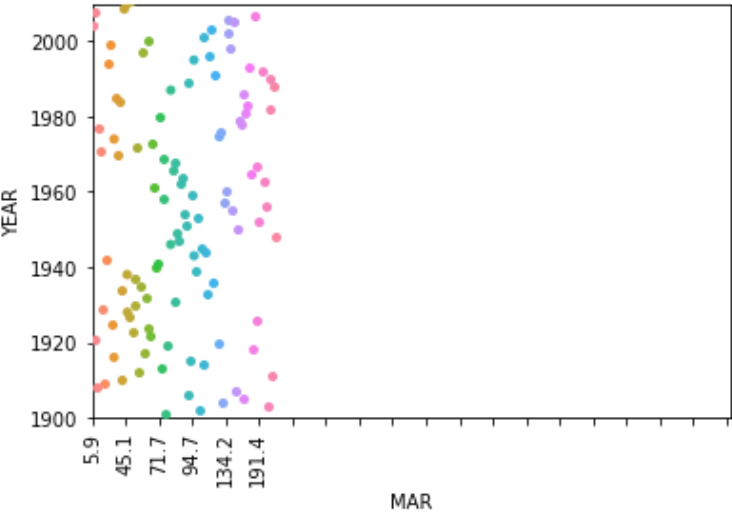
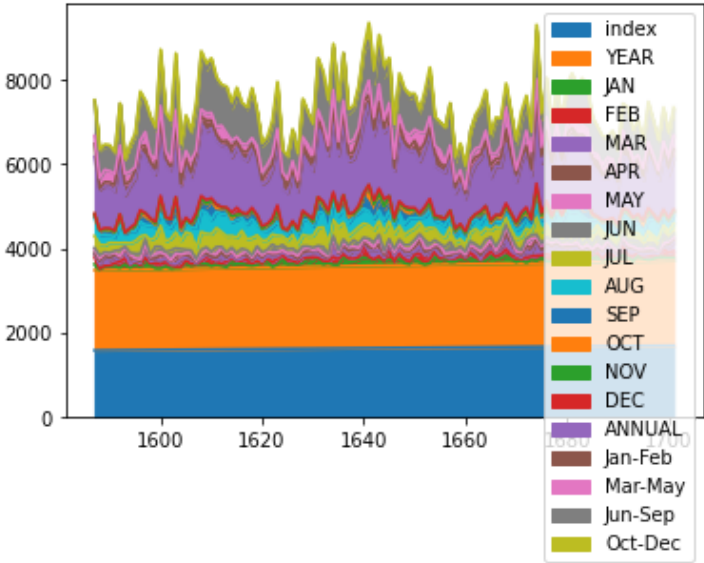
dat2.plot.bar("YEAR", "MAR")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat2.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat2.plot.area()
dat2.plot.scatter("YEAR", "MAR")
sns.stripplot(x=dat2["MAR"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["MAR"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()

```

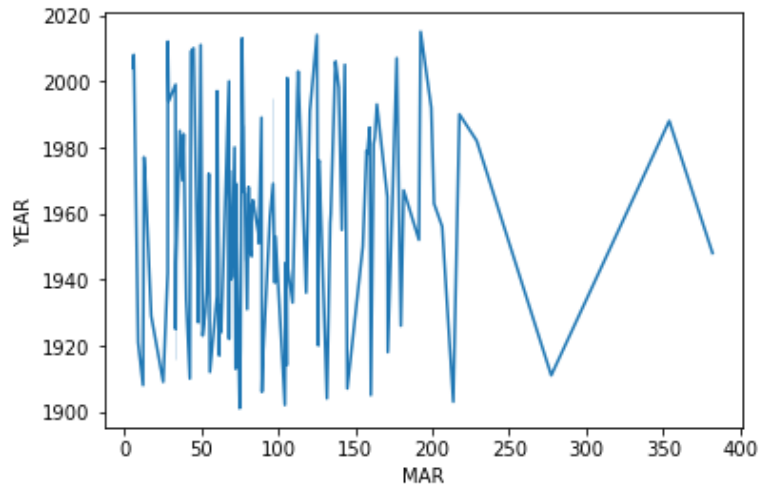


&lt;Figure size 4320x2160 with 0 Axes&gt;





```
In [9]: sns.lineplot(x=dat2["MAR"],y=dat2["YEAR"])
plt.show()
```



```
In [1]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import matplotlib.ticker as tic
```

```
In [2]: df=pd.read_csv("cleaned_rainfall")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7
...	...	...	...	...	...	...	...	...	...	...	...	...	...
4111	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4
4112	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9
4113	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8
4114	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2
4115	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4

4116 rows × 20 columns



```
In [3]: df["SUBDIVISION"].value_counts()
```

```
Out[3]: RAYALSEEMA          115
KERALA                    115
SOUTH INTERIOR KARNATAKA  115
GANGETIC WEST BENGAL     115
JAMMU & KASHMIR          115
MADHYA MAHARASHTRA       115
WEST RAJASTHAN           115
WEST UTTAR PRADESH       115
BIHAR                    115
SAURASHTRA & KUTCH       115
SUB HIMALAYAN WEST BENGAL & SIKKIM 115
UTTARAKHAND              115
WEST MADHYA PRADESH      115
ASSAM & MEGHALAYA        115
COASTAL ANDHRA PRADESH   115
TELANGANA                115
GUJARAT REGION           115
NAGA MANI MIZO TRIPURA  115
ORISSA                   115
MATATHWADA               115
KONKAN & GOA             115
EAST RAJASTHAN           115
NORTH INTERIOR KARNATAKA 115
HARYANA DELHI & CHANDIGARH 115
TAMIL NADU               115
EAST UTTAR PRADESH       115
PUNJAB                   115
HIMACHAL PRADESH         115
JHARKHAND                115
EAST MADHYA PRADESH      115
COASTAL KARNATAKA        115
CHHATTISGARH             115
VIDARBHA                 115
LAKSHADWEEP              114
ANDAMAN & NICOBAR ISLANDS 110
ARUNACHAL PRADESH        97
Name: SUBDIVISION, dtype: int64
```

## TELANGANA

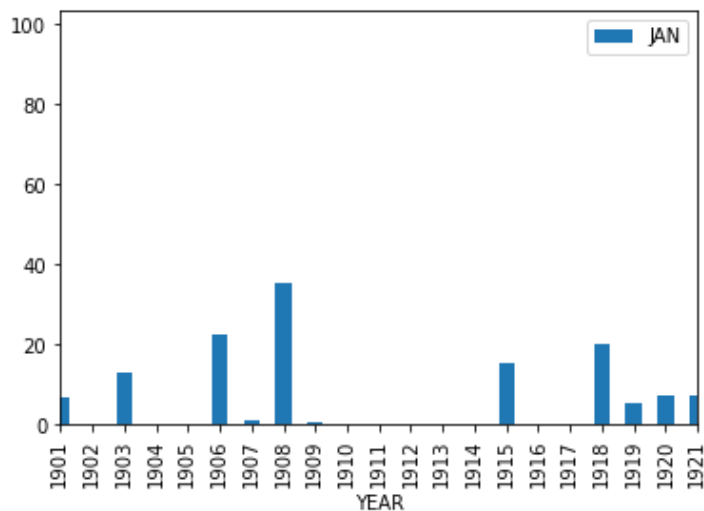
```
In [4]: dat1=df[df["SUBDIVISION"]=="TELANGANA"]
        dat1
```

Out[4]:

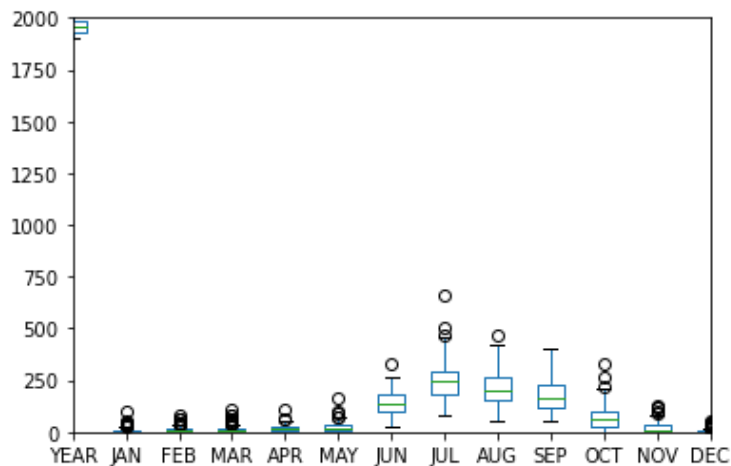
	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
3197	3197	TELANGANA	1901	6.9	41.8	7.8	45.2	22.0	123.6	237.8	177.2	77.7	75.5	12.1
3198	3198	TELANGANA	1902	0.0	0.0	0.2	10.7	7.3	52.4	146.3	142.8	190.5	41.7	31.1
3199	3199	TELANGANA	1903	12.9	4.6	0.0	9.9	40.7	99.2	505.2	246.7	191.9	155.8	15.1
3200	3200	TELANGANA	1904	0.0	0.0	10.8	0.8	14.7	104.2	139.5	50.0	162.3	44.4	0.0
3201	3201	TELANGANA	1905	0.0	4.3	12.8	27.6	32.2	129.5	82.4	237.3	179.1	19.6	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3307	3307	TELANGANA	2011	0.0	11.9	2.6	25.6	9.3	83.9	268.2	225.9	107.6	13.9	4.1
3308	3308	TELANGANA	2012	6.7	0.0	0.2	14.0	8.4	124.4	300.3	229.9	202.4	83.6	38.1
3309	3309	TELANGANA	2013	2.4	29.0	0.2	24.4	8.5	213.4	453.8	230.6	161.4	205.9	16.4
3310	3310	TELANGANA	2014	0.2	2.9	58.3	10.3	73.3	62.3	146.0	205.2	146.8	29.6	10.1
3311	3311	TELANGANA	2015	17.5	0.0	43.0	65.7	23.3	266.9	104.4	160.5	158.3	15.6	0.1

115 rows × 20 columns

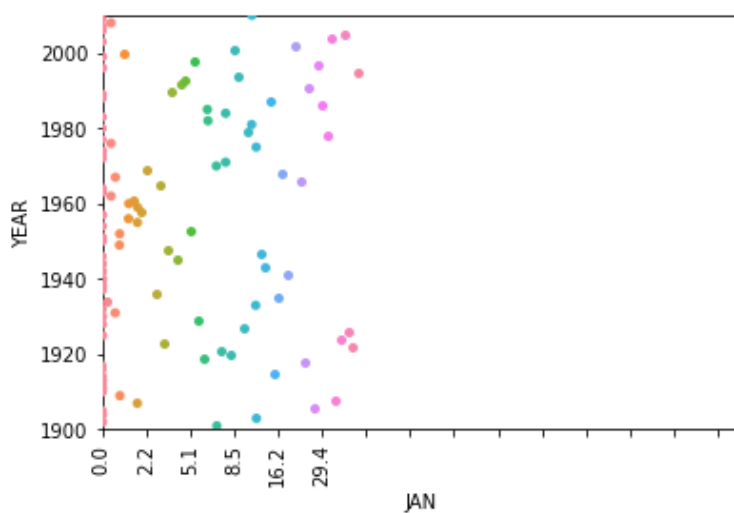
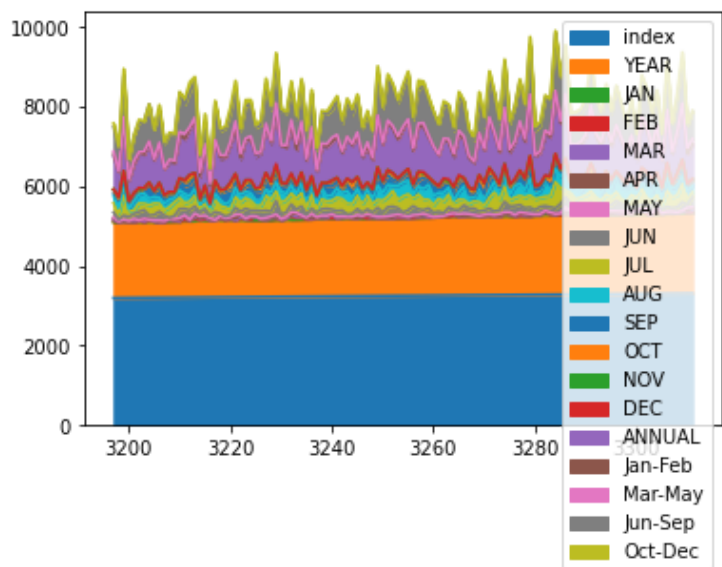
```
In [5]: dat1.plot.bar("YEAR", "JAN")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR", "JAN")
sns.stripplot(x=dat1["JAN"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["JAN"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=10))
plt.show()
dat1.plot.hist()
```



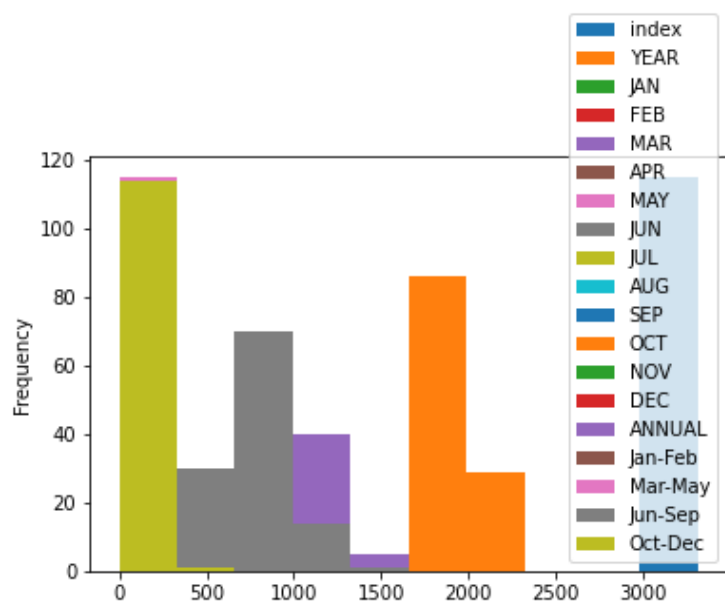
<Figure size 4320x2160 with 0 Axes>



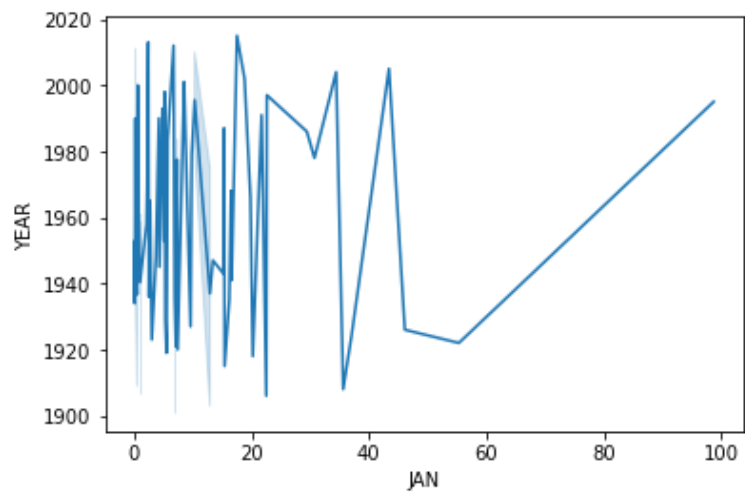




Out[5]: <AxesSubplot:ylabel='Frequency'>



```
In [6]: sns.lineplot(x=dat1["JAN"],y=dat1["YEAR"])
plt.show()
```



# SAURASHTRA & KUTCH

```
In [7]: dat2=df[df["SUBDIVISION"]=="SAURASHTRA & KUTCH"]
dat2
```

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
2392	2392	SAURASHTRA & KUTCH	1901	1.9	0.0	0.1	0.2	3.2	9.1	87.8	62.5	12.0	3.8	0.0
2393	2393	SAURASHTRA & KUTCH	1902	0.1	0.0	0.0	0.5	1.1	14.4	92.9	160.0	123.9	1.5	0.1
2394	2394	SAURASHTRA & KUTCH	1903	0.5	0.0	1.7	0.0	3.1	10.5	337.9	96.1	61.9	11.1	0.0
2395	2395	SAURASHTRA & KUTCH	1904	1.4	5.8	17.5	0.0	0.0	9.5	111.2	9.4	28.9	0.3	1.7
2396	2396	SAURASHTRA & KUTCH	1905	1.5	1.0	0.6	0.4	0.0	6.4	254.5	12.3	12.8	0.4	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2502	2502	SAURASHTRA & KUTCH	2011	0.0	1.4	0.0	0.0	0.0	26.0	212.7	290.9	210.1	1.2	0.1
2503	2503	SAURASHTRA & KUTCH	2012	0.0	0.0	0.0	0.2	0.1	22.4	34.7	34.5	228.5	2.4	0.0
2504	2504	SAURASHTRA & KUTCH	2013	1.7	0.2	0.1	8.5	0.1	127.7	171.2	83.3	260.2	28.6	0.0
2505	2505	SAURASHTRA & KUTCH	2014	0.3	0.0	0.1	0.5	2.1	17.3	137.7	118.8	99.2	5.2	2.7
2506	2506	SAURASHTRA & KUTCH	2015	0.9	0.0	4.4	2.1	0.8	112.6	226.7	10.6	79.9	3.3	0.1

115 rows × 20 columns

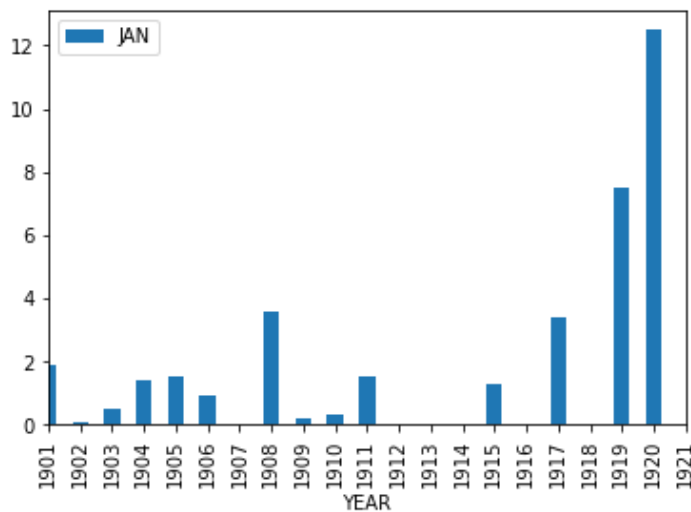


In [8]:

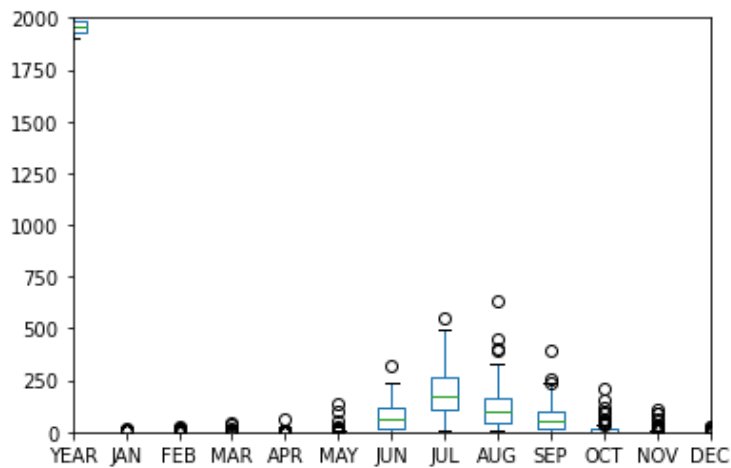
```

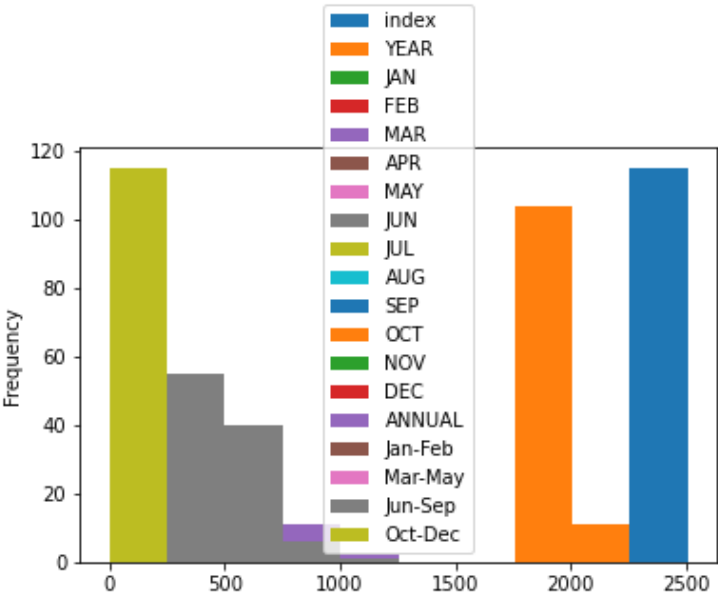
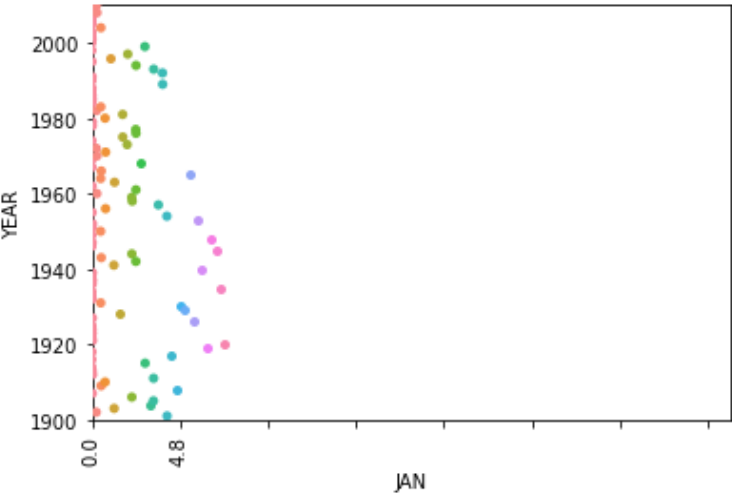
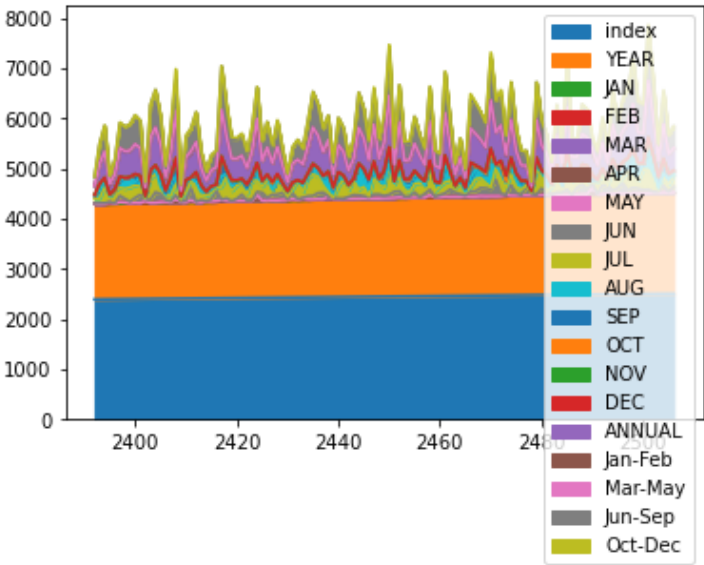
dat2.plot.bar("YEAR", "JAN")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat2.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat2.plot.area()
dat2.plot.scatter("YEAR", "JAN")
sns.stripplot(x=dat2["JAN"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["JAN"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()

```

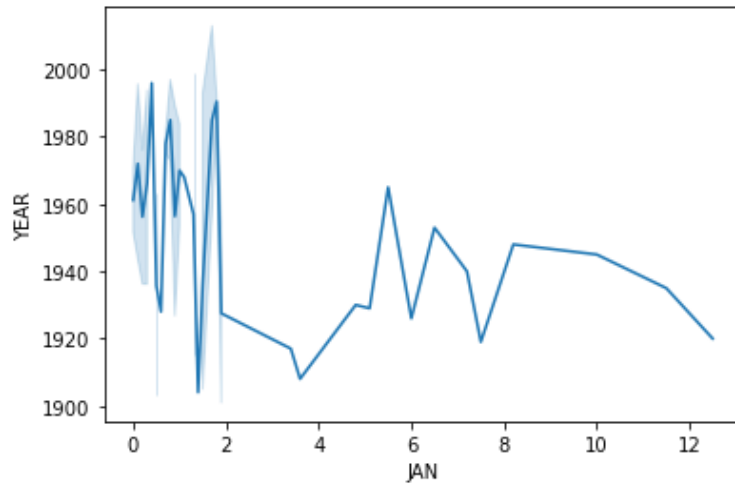


&lt;Figure size 4320x2160 with 0 Axes&gt;





```
In [9]: sns.lineplot(x=dat2["JAN"],y=dat2["YEAR"])  
plt.show()
```



```
In [1]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import matplotlib.ticker as tic
```

```
In [2]: df=pd.read_csv("cleaned_rainfall")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7
...	...	...	...	...	...	...	...	...	...	...	...	...	...
4111	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4
4112	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9
4113	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8
4114	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2
4115	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4

4116 rows × 20 columns



```
In [3]: df["SUBDIVISION"].value_counts()
```

```
Out[3]: NORTH INTERIOR KARNATAKA      115
        GUJARAT REGION                115
        NAGA MANI MIZO TRIPURA       115
        TELANGANA                     115
        JHARKHAND                     115
        EAST RAJASTHAN                 115
        BIHAR                         115
        SOUTH INTERIOR KARNATAKA      115
        WEST RAJASTHAN                115
        EAST UTTAR PRADESH            115
        KERALA                       115
        HARYANA DELHI & CHANDIGARH    115
        ORISSA                       115
        UTTARAKHAND                  115
        WEST MADHYA PRADESH           115
        MADHYA MAHARASHTRA            115
        PUNJAB                       115
        COASTAL KARNATAKA              115
        ASSAM & MEGHALAYA              115
        JAMMU & KASHMIR                115
        SUB HIMALAYAN WEST BENGAL & SIKKIM 115
        MATATHWADA                    115
        KONKAN & GOA                   115
        EAST MADHYA PRADESH            115
        WEST UTTAR PRADESH            115
        HIMACHAL PRADESH              115
        SAURASHTRA & KUTCH             115
        VIDARBHA                      115
        RAYALSEEMA                    115
        TAMIL NADU                    115
        CHHATTISGARH                  115
        GANGETIC WEST BENGAL           115
        COASTAL ANDHRA PRADESH         115
        LAKSHADWEEP                   114
        ANDAMAN & NICOBAR ISLANDS      110
        ARUNACHAL PRADESH              97
Name: SUBDIVISION, dtype: int64
```

## EAST UTTAR PRADESH

```
In [4]: dat1=df[df["SUBDIVISION"]=="EAST UTTAR PRADESH"]
        dat1
```

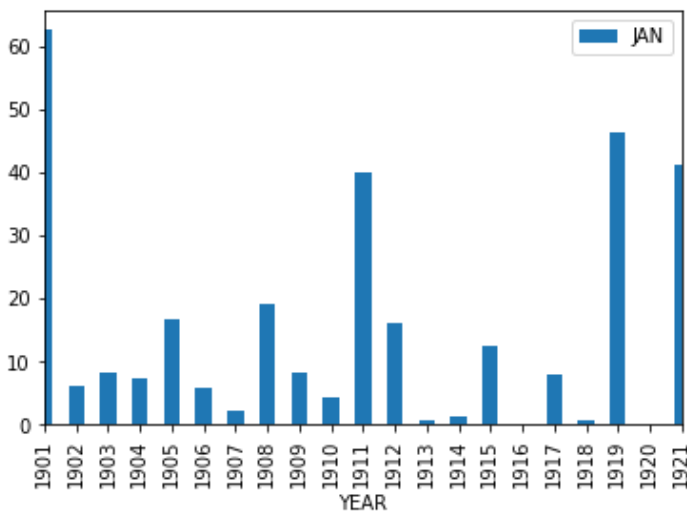
Out[4]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1012	1012	EAST UTTAR PRADESH	1901	62.6	31.3	8.2	1.1	13.6	21.8	226.5	285.6	215.4	4.9	0.0
1013	1013	EAST UTTAR PRADESH	1902	6.1	2.3	2.4	2.0	21.4	32.5	411.5	155.4	257.2	13.2	1.0
1014	1014	EAST UTTAR PRADESH	1903	8.2	0.4	1.3	0.7	15.3	71.6	115.3	420.2	258.7	324.7	0.0
1015	1015	EAST UTTAR PRADESH	1904	7.3	1.5	8.3	0.4	28.7	148.0	359.4	328.8	95.0	50.6	17.0
1016	1016	EAST UTTAR PRADESH	1905	16.8	23.6	20.0	5.4	15.4	17.3	302.4	316.2	169.5	3.3	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1122	1122	EAST UTTAR PRADESH	2011	1.0	2.7	1.6	2.9	32.2	163.8	197.9	232.1	146.4	0.6	0.0
1123	1123	EAST UTTAR PRADESH	2012	20.3	1.2	3.4	2.8	0.2	18.5	234.2	156.0	164.4	0.7	0.0
1124	1124	EAST UTTAR PRADESH	2013	6.1	59.6	2.7	8.7	1.1	309.7	230.0	246.1	78.2	97.4	0.0
1125	1125	EAST UTTAR PRADESH	2014	47.4	25.8	15.4	1.7	10.7	47.8	224.5	138.1	106.7	74.7	0.0
1126	1126	EAST UTTAR PRADESH	2015	30.0	4.1	48.2	23.2	8.6	95.3	179.0	175.8	21.9	11.8	0.0

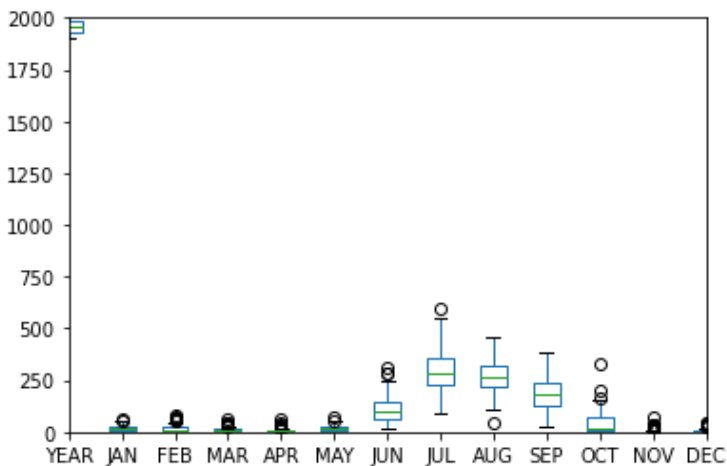
115 rows × 20 columns

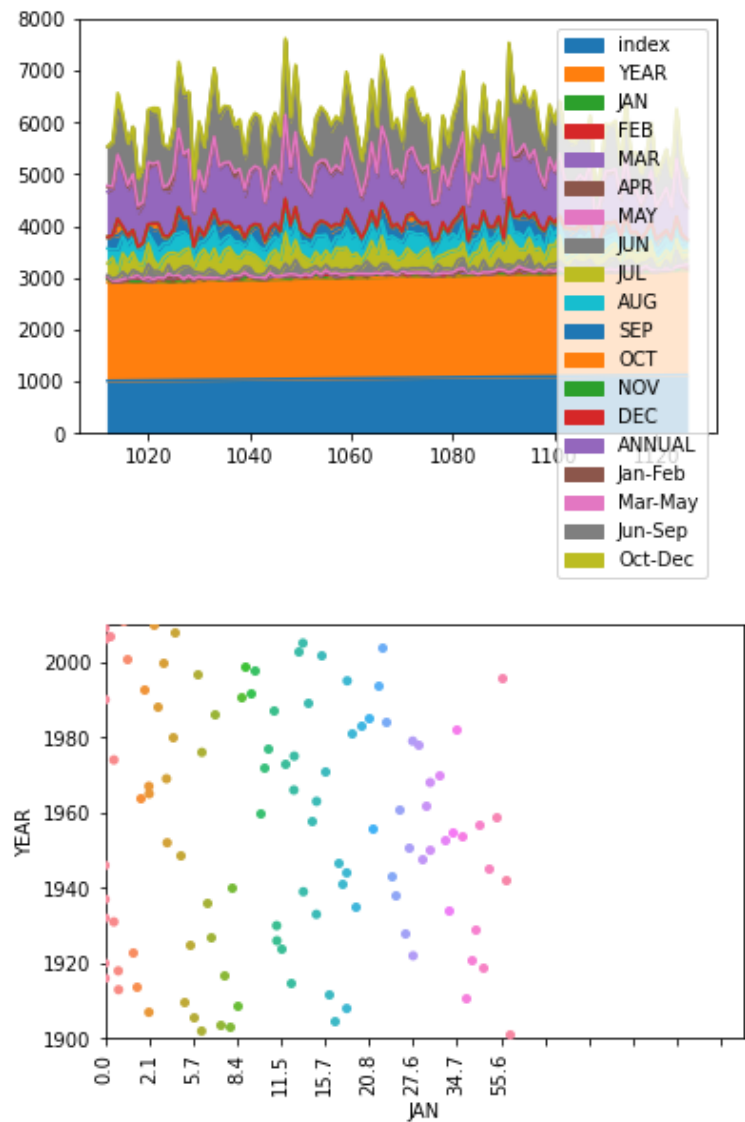


```
In [5]: dat1.plot.bar("YEAR", "JAN")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR", "JAN")
sns.stripplot(x=dat1["JAN"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["JAN"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=10))
plt.show()
dat1.plot.hist()
```

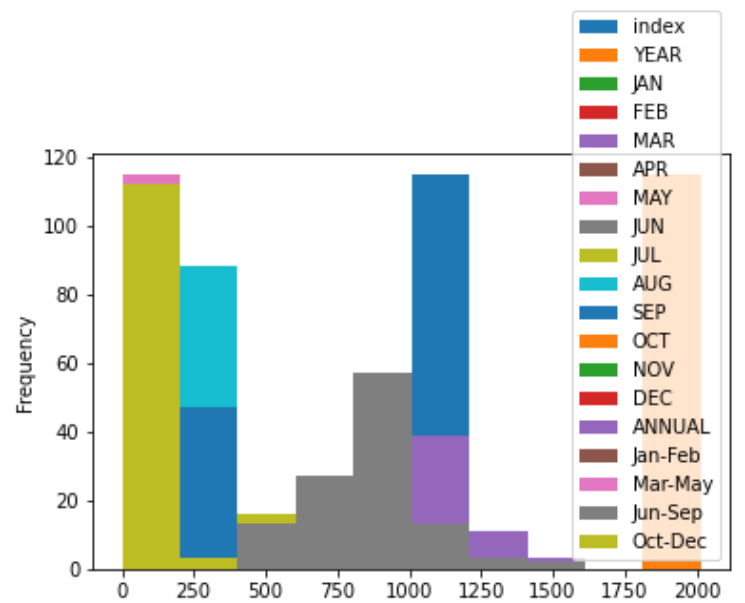


<Figure size 4320x2160 with 0 Axes>

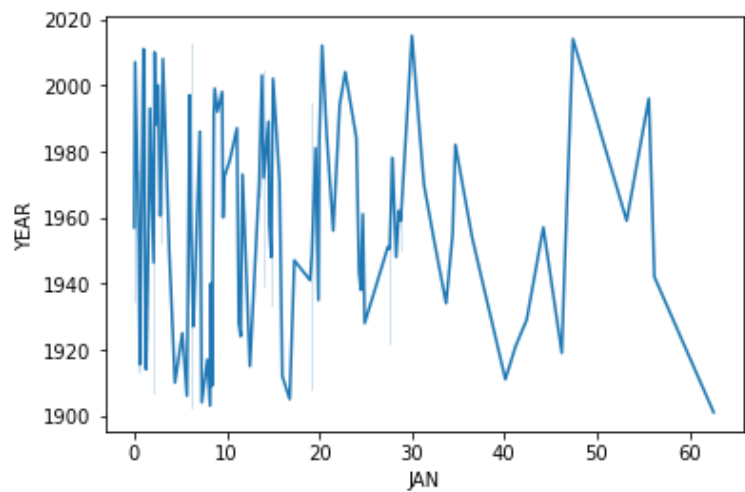




Out[5]: <AxesSubplot:ylabel='Frequency'>



```
In [6]: sns.lineplot(x=dat1["JAN"],y=dat1["YEAR"])
plt.show()
```



# EAST RAJASTHAN

```
In [7]: dat2=df[df["SUBDIVISION"]=="EAST RAJASTHAN"]
dat2
```

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1932	1932	EAST RAJASTHAN	1901	21.6	8.9	2.9	0.7	5.0	15.0	164.8	175.6	7.5	9.8	0.0
1933	1933	EAST RAJASTHAN	1902	4.1	0.7	0.0	1.8	9.9	34.6	247.6	116.7	145.6	14.4	0.0
1934	1934	EAST RAJASTHAN	1903	1.9	0.7	1.3	0.1	12.9	15.6	238.2	229.1	168.5	17.8	0.0
1935	1935	EAST RAJASTHAN	1904	4.3	5.5	21.7	0.2	27.5	49.9	289.7	223.5	50.2	1.5	5.8
1936	1936	EAST RAJASTHAN	1905	4.1	8.8	3.2	1.6	2.0	14.4	130.5	30.9	83.8	0.0	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2042	2042	EAST RAJASTHAN	2011	0.0	11.2	0.2	0.5	5.1	140.9	193.6	284.1	166.4	0.0	0.0
2043	2043	EAST RAJASTHAN	2012	1.9	0.0	0.0	3.6	9.5	11.2	170.5	365.0	131.3	0.5	0.0
2044	2044	EAST RAJASTHAN	2013	1.4	21.7	0.4	3.2	1.0	90.6	319.0	278.5	88.0	30.6	1.3
2045	2045	EAST RAJASTHAN	2014	28.4	10.0	6.4	7.3	8.4	23.5	197.1	261.0	136.9	3.2	0.0
2046	2046	EAST RAJASTHAN	2015	12.1	0.1	55.9	15.9	3.5	96.4	297.6	142.8	20.1	5.0	0.5

115 rows × 20 columns

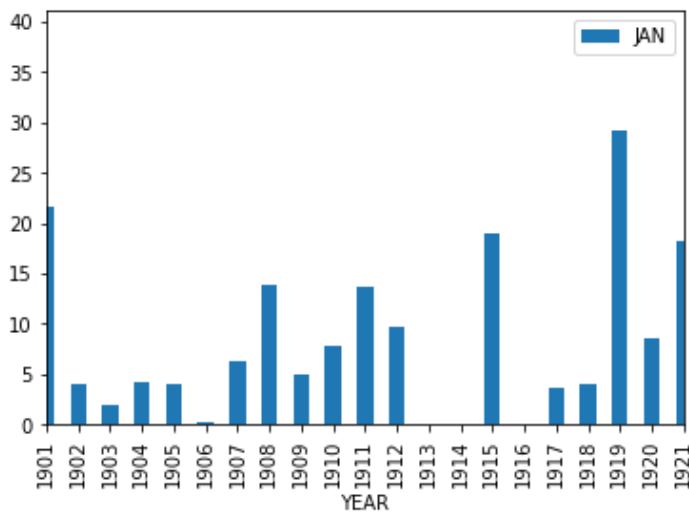


In [8]:

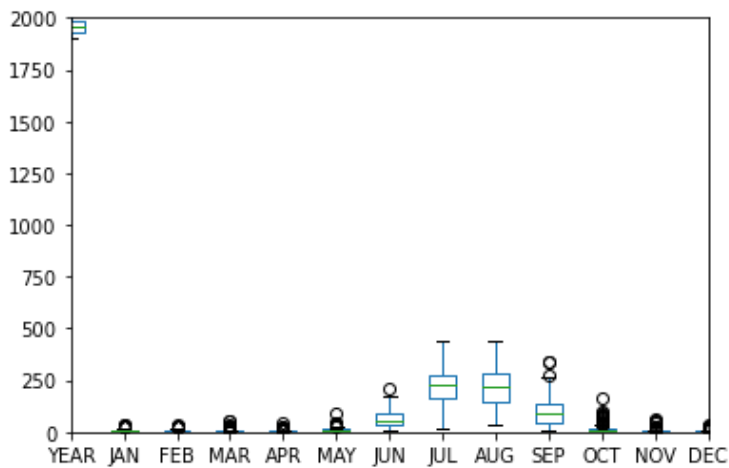
```

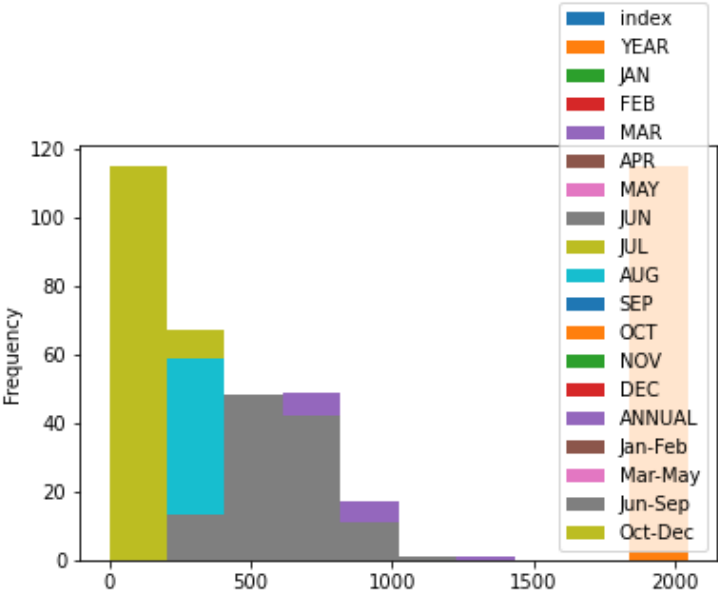
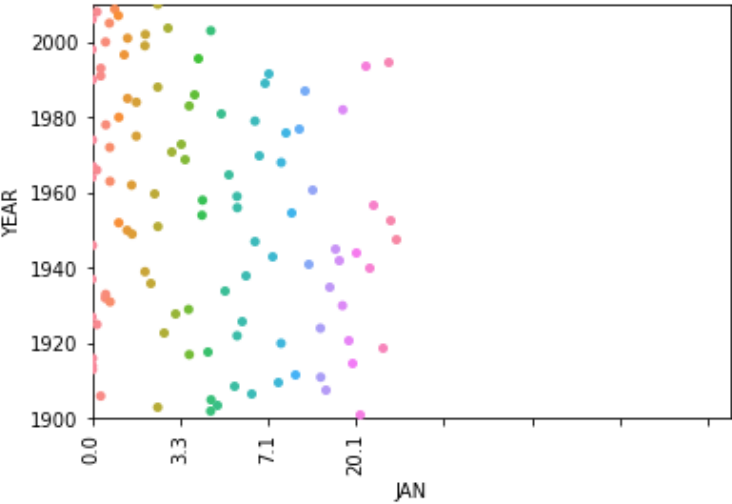
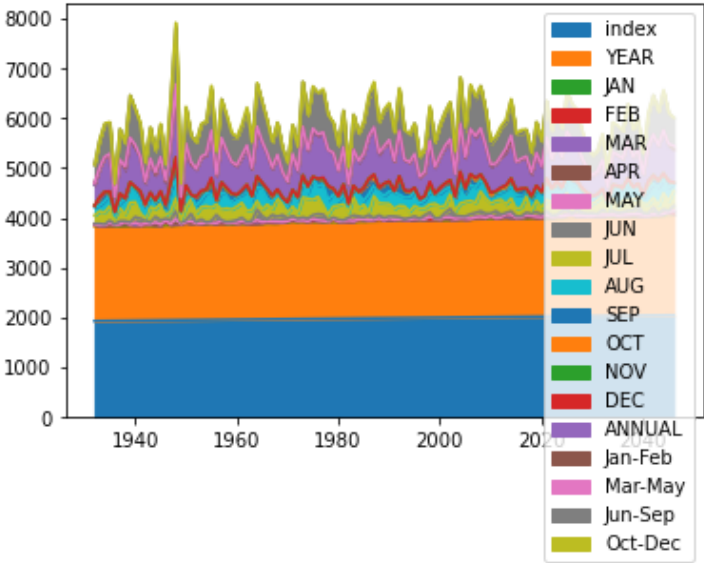
dat2.plot.bar("YEAR", "JAN")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat2.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat2.plot.area()
dat2.plot.scatter("YEAR", "JAN")
sns.stripplot(x=dat2["JAN"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["JAN"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()

```



&lt;Figure size 4320x2160 with 0 Axes&gt;





```
In [9]: sns.lineplot(x=dat2["JAN"],y=dat2["YEAR"])  
plt.show()
```

