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

In [2]:
```python
df=pd.read_csv("rainfall in india 1901-2015.csv")
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.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4116 entries, 0 to 4115
Data columns (total 20 columns):
 #   Column       Non-Null Count  Dtype
---  ------       --------------  -----
 0   index        4116 non-null   int64
 1   SUBDIVISION  4116 non-null   object
 2   YEAR         4116 non-null   int64
 3   JAN          4112 non-null   float64
 4   FEB          4113 non-null   float64
 5   MAR          4110 non-null   float64
 6   APR          4112 non-null   float64
 7   MAY          4113 non-null   float64
 8   JUN          4111 non-null   float64
 9   JUL          4109 non-null   float64
 10  AUG          4112 non-null   float64
 11  SEP          4110 non-null   float64
 12  OCT          4109 non-null   float64
 13  NOV          4105 non-null   float64
 14  DEC          4106 non-null   float64
 15  ANNUAL       4090 non-null   float64
 16  Jan-Feb      4110 non-null   float64
 17  Mar-May      4107 non-null   float64
 18  Jun-Sep      4106 non-null   float64
 19  Oct-Dec      4103 non-null   float64
dtypes: float64(17), int64(2), object(1)
memory usage: 643.2+ KB
```

In [4]: `df.describe()`

Out[4]:

	index	YEAR	JAN	FEB	MAR	APR	MAY	
count	4116.000000	4116.000000	4112.000000	4113.000000	4110.000000	4112.000000	4113.000000	411
mean	2057.500000	1958.218659	18.957320	21.805325	27.359197	43.127432	85.745417	23
std	1188.331183	33.140898	33.585371	35.909488	46.959424	67.831168	123.234904	23
min	0.000000	1901.000000	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	1028.750000	1930.000000	0.600000	0.600000	1.000000	3.000000	8.600000	7
50%	2057.500000	1958.000000	6.000000	6.700000	7.800000	15.700000	36.600000	13
75%	3086.250000	1987.000000	22.200000	26.800000	31.300000	49.950000	97.200000	30
max	4115.000000	2015.000000	583.700000	403.500000	605.600000	595.100000	1168.600000	160

In [5]:
```python
df["JAN"]=df["JAN"].fillna(df["JAN"].median())
df["FEB"]=df["FEB"].fillna(df["FEB"].median())
df["MAR"]=df["MAR"].fillna(df["MAR"].median())
df["APR"]=df["APR"].fillna(df["APR"].median())
df["MAY"]=df["MAY"].fillna(df["MAY"].median())
df["JUN"]=df["JUN"].fillna(df["JUN"].median())
df["JUL"]=df["JUL"].fillna(df["JUL"].median())
df["AUG"]=df["AUG"].fillna(df["AUG"].median())
df["SEP"]=df["SEP"].fillna(df["SEP"].median())
df["OCT"]=df["OCT"].fillna(df["OCT"].median())
df["NOV"]=df["NOV"].fillna(df["NOV"].median())
df["DEC"]=df["DEC"].fillna(df["DEC"].median())
df["ANNUAL"]=df["ANNUAL"].fillna(df["ANNUAL"].mean())
df["Jan-Feb"]=df["Jan-Feb"].fillna(df["Jan-Feb"].mean())
df["Mar-May"]=df["Mar-May"].fillna(df["Mar-May"].mean())
df["Jun-Sep"]=df["Jun-Sep"].fillna(df["Jun-Sep"].mean())
df["Oct-Dec"]=df["Oct-Dec"].fillna(df["Oct-Dec"].mean())
```

In [6]:
```python
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4116 entries, 0 to 4115
Data columns (total 20 columns):
 #   Column       Non-Null Count  Dtype
---  ------       --------------  -----
 0   index        4116 non-null   int64
 1   SUBDIVISION  4116 non-null   object
 2   YEAR         4116 non-null   int64
 3   JAN          4116 non-null   float64
 4   FEB          4116 non-null   float64
 5   MAR          4116 non-null   float64
 6   APR          4116 non-null   float64
 7   MAY          4116 non-null   float64
 8   JUN          4116 non-null   float64
 9   JUL          4116 non-null   float64
 10  AUG          4116 non-null   float64
 11  SEP          4116 non-null   float64
 12  OCT          4116 non-null   float64
 13  NOV          4116 non-null   float64
 14  DEC          4116 non-null   float64
 15  ANNUAL       4116 non-null   float64
 16  Jan-Feb      4116 non-null   float64
 17  Mar-May      4116 non-null   float64
 18  Jun-Sep      4116 non-null   float64
 19  Oct-Dec      4116 non-null   float64
dtypes: float64(17), int64(2), object(1)
memory usage: 643.2+ KB
```

In [7]:
```python
df["SUBDIVISION"].value_counts()
```

Out[7]:
```
EAST UTTAR PRADESH                  115
EAST MADHYA PRADESH                 115
EAST RAJASTHAN                      115
UTTARAKHAND                         115
MATATHWADA                          115
NORTH INTERIOR KARNATAKA            115
RAYALSEEMA                          115
SOUTH INTERIOR KARNATAKA            115
JAMMU & KASHMIR                     115
ASSAM & MEGHALAYA                   115
SUB HIMALAYAN WEST BENGAL & SIKKIM  115
VIDARBHA                            115
GUJARAT REGION                      115
JHARKHAND                           115
COASTAL KARNATAKA                   115
KERALA                              115
WEST MADHYA PRADESH                 115
MADHYA MAHARASHTRA                  115
NAGA MANI MIZO TRIPURA              115
HIMACHAL PRADESH                    115
HARYANA DELHI & CHANDIGARH          115
TELANGANA                           115
KONKAN & GOA                        115
ORISSA                              115
COASTAL ANDHRA PRADESH              115
PUNJAB                              115
WEST RAJASTHAN                      115
WEST UTTAR PRADESH                  115
SAURASHTRA & KUTCH                  115
CHHATTISGARH                        115
TAMIL NADU                          115
BIHAR                               115
GANGETIC WEST BENGAL                115
LAKSHADWEEP                         114
ANDAMAN & NICOBAR ISLANDS           110
ARUNACHAL PRADESH                    97
Name: SUBDIVISION, dtype: int64
```

In [26]:
```python
df=df.set_index("index")
```

In [27]:
```python
df.to_csv("cleaned_rainfall")
```

ANDAMAN & NICOBAR ISLANDS

In [11]:
```
dat1=df[df["SUBDIVISION"]=="ANDAMAN & NICOBAR ISLANDS"]
dat1
```

Out[11]:
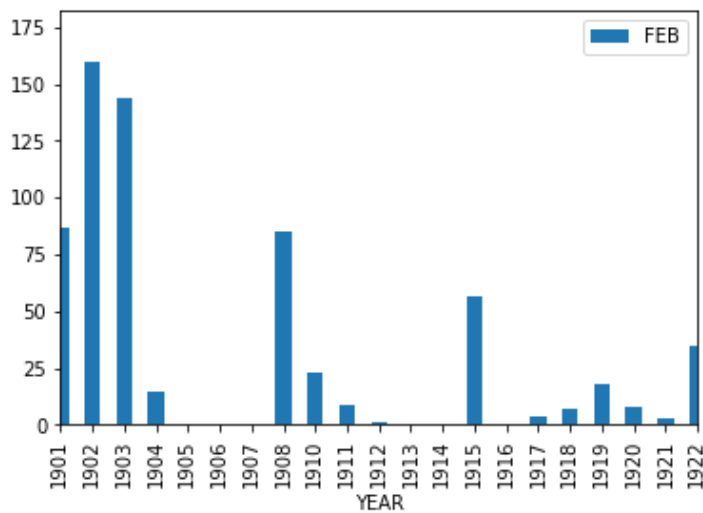
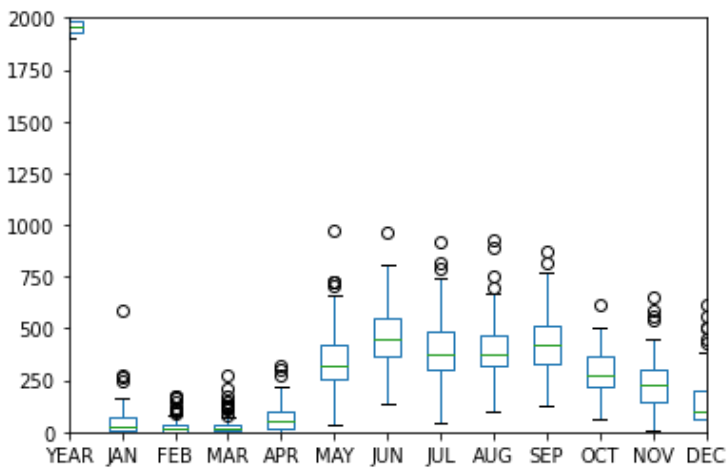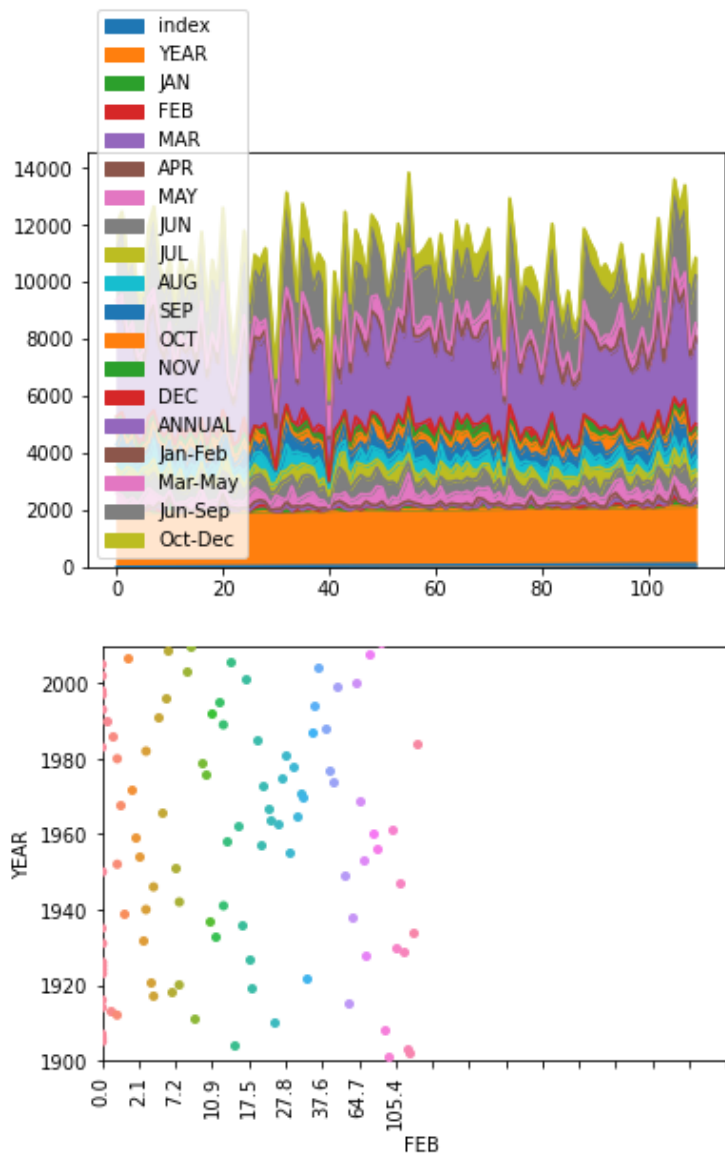|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5	5
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2	3
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2	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	3
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	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
105	105	ANDAMAN & NICOBAR ISLANDS	2011	265.9	84.8	272.8	111.4	326.5	383.2	583.2	441.5	757.1	212.3	1
106	106	ANDAMAN & NICOBAR ISLANDS	2012	119.9	45.6	30.9	55.8	533.9	458.2	317.3	369.6	868.9	209.7	3
107	107	ANDAMAN & NICOBAR ISLANDS	2013	67.1	37.6	43.0	46.3	509.3	777.0	564.8	336.7	473.6	455.8	3
108	108	ANDAMAN & NICOBAR ISLANDS	2014	41.9	8.6	0.0	11.1	238.0	416.6	467.6	321.6	412.9	402.6	2
109	109	ANDAMAN & NICOBAR ISLANDS	2015	126.8	7.6	3.1	138.2	331.9	346.4	328.9	480.0	523.3	252.1	2

110 rows × 20 columns

In [23]:
```python
dat1.plot.bar("YEAR","FEB")
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","FEB")
sns.stripplot(x=dat1["FEB"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["FEB"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=10))
plt.show()
dat1.plot.hist()
```
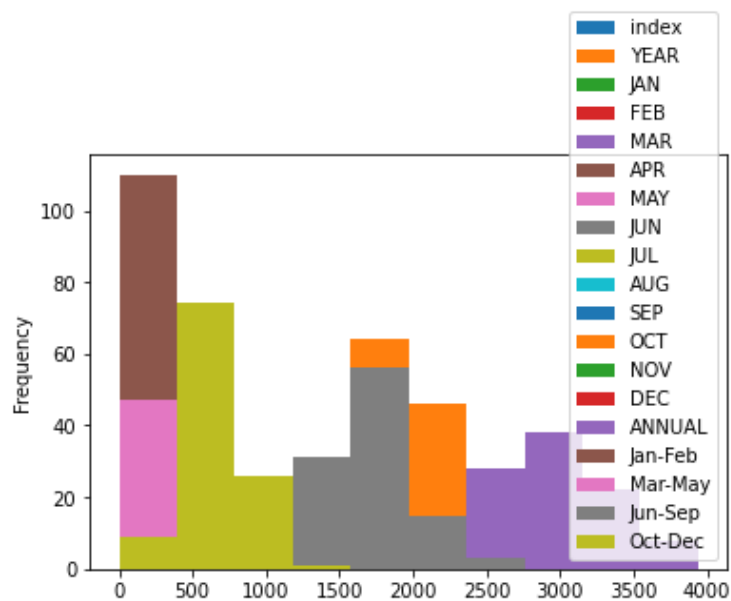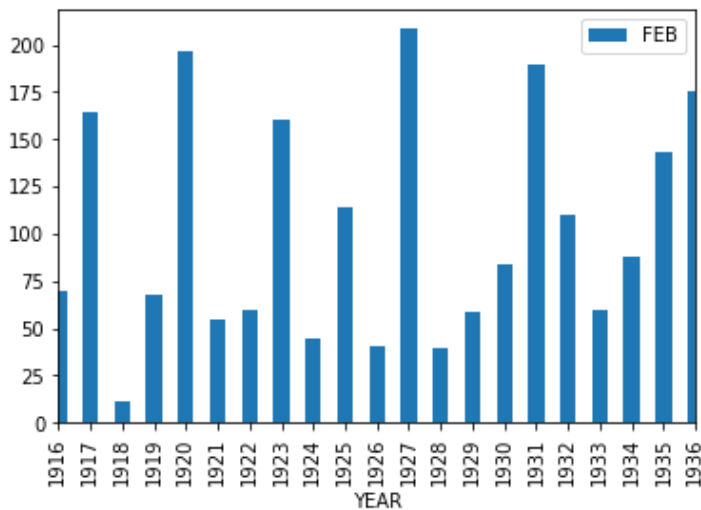


```
<Figure size 4320x2160 with 0 Axes>
```

Out[23]: `<AxesSubplot:ylabel='Frequency'>`

ARUNACHAL PRADESH

In [13]:
```python
dat2=df[df["SUBDIVISION"]=="ARUNACHAL PRADESH"]
dat2
```
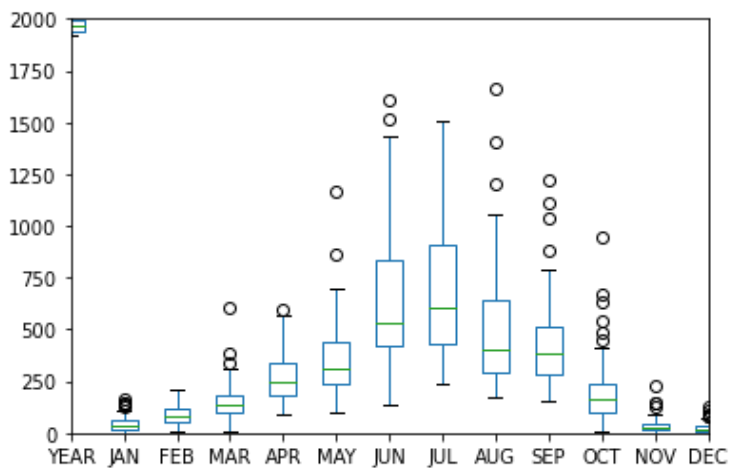
Out[13]:

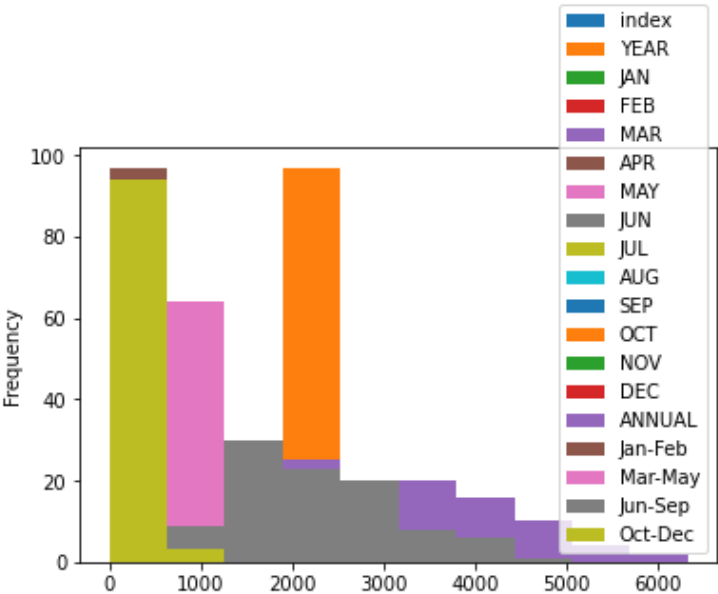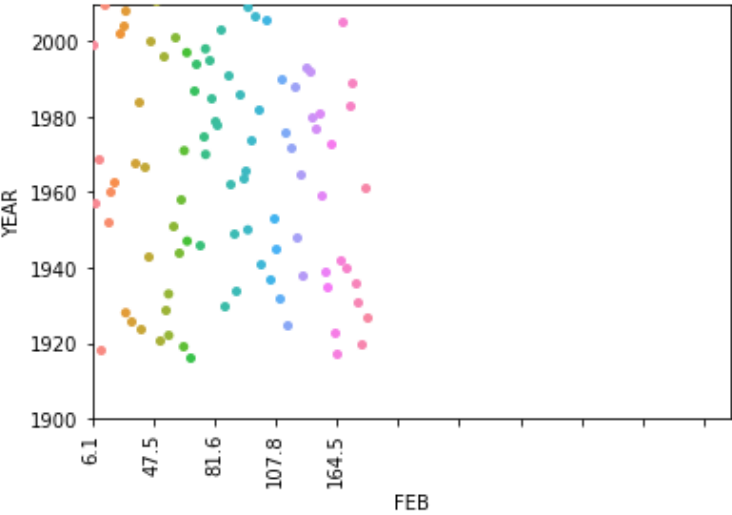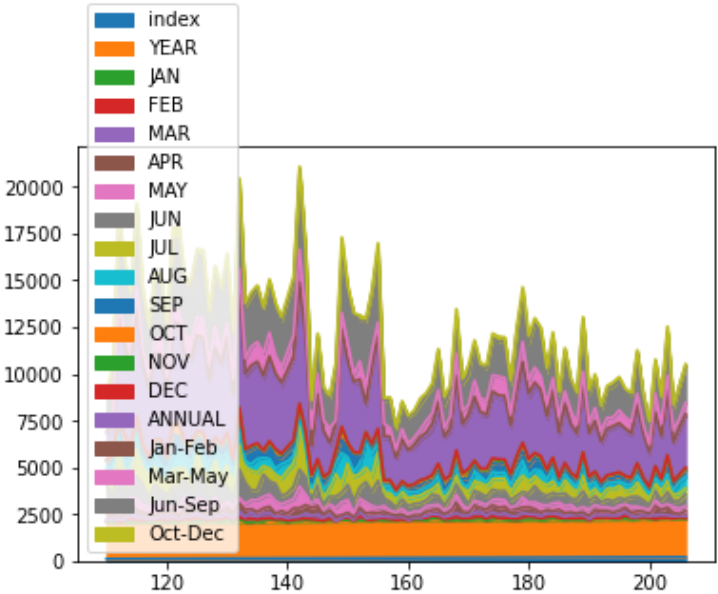|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
110	110	ARUNACHAL PRADESH	1916	48.1	69.8	71.1	316.1	424.6	1124.9	284.8	629.7	333.9	65.2
111	111	ARUNACHAL PRADESH	1917	21.4	164.5	7.8	269.6	107.9	823.8	909.1	628.4	411.5	199.3
112	112	ARUNACHAL PRADESH	1918	10.4	11.0	191.2	144.6	861.1	1609.9	1303.0	692.6	515.8	125.2
113	113	ARUNACHAL PRADESH	1919	34.5	67.8	28.5	256.9	420.6	973.6	999.0	286.7	628.7	948.3
114	114	ARUNACHAL PRADESH	1920	14.0	196.3	605.6	364.7	173.6	840.6	535.4	896.5	376.7	103.3
...	...	...	...	...	...	...	...	...	...	...	...	...	...
202	202	ARUNACHAL PRADESH	2011	40.0	51.3	174.5	240.8	219.6	288.4	531.4	277.6	286.7	51.9
203	203	ARUNACHAL PRADESH	2012	57.8	35.8	134.2	403.4	187.4	645.8	638.9	316.0	724.9	248.1
204	204	ARUNACHAL PRADESH	2013	18.5	40.5	115.1	175.1	335.8	290.0	329.6	230.2	316.1	164.1
205	205	ARUNACHAL PRADESH	2014	19.0	101.9	80.3	86.7	299.0	415.8	392.4	599.6	343.0	35.1
206	206	ARUNACHAL PRADESH	2015	30.8	47.5	97.5	287.1	238.9	637.9	329.3	595.5	374.2	65.2

97 rows × 20 columns

In [24]:
```python
dat2.plot.bar("YEAR","FEB")
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","FEB")
sns.stripplot(x=dat2["FEB"],y=dat2["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat2["FEB"],rotation="vertical")
plt.gca().xaxis.set_major_locator(tic.MultipleLocator(base=20))
plt.show()
dat2.plot.hist()
plt.show()
```
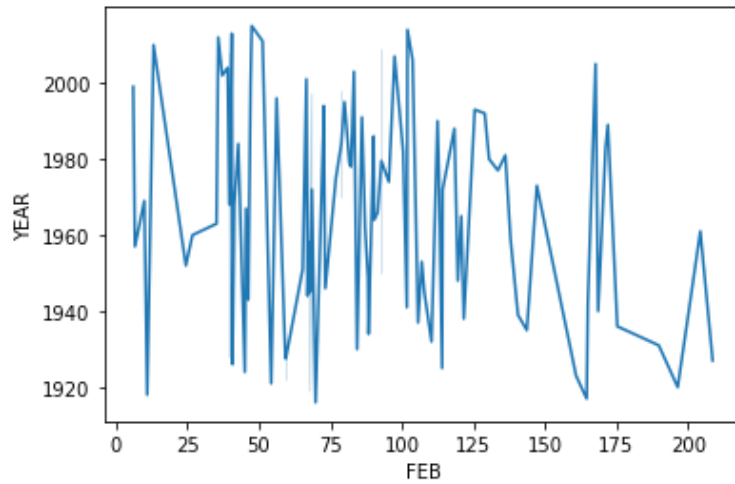

<Figure size 4320x2160 with 0 Axes>

In [25]:
```python
sns.lineplot(x=dat2["FEB"],y=dat2["YEAR"])
plt.show()
```


In [ ]:

In [ ]:

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

In [2]:
```python
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]: HARYANA DELHI & CHANDIGARH             115
        WEST RAJASTHAN                        115
        GUJARAT REGION                        115
        UTTARAKHAND                           115
        EAST UTTAR PRADESH                    115
        PUNJAB                                115
        TELANGANA                             115
        RAYALSEEMA                            115
        BIHAR                                 115
        COASTAL ANDHRA PRADESH                115
        CHHATTISGARH                          115
        COASTAL KARNATAKA                     115
        WEST UTTAR PRADESH                    115
        HIMACHAL PRADESH                      115
        GANGETIC WEST BENGAL                  115
        KERALA                                115
        ASSAM & MEGHALAYA                     115
        TAMIL NADU                            115
        NAGA MANI MIZO TRIPURA                115
        WEST MADHYA PRADESH                   115
        EAST RAJASTHAN                        115
        VIDARBHA                              115
        SOUTH INTERIOR KARNATAKA              115
        NORTH INTERIOR KARNATAKA              115
        KONKAN & GOA                          115
        SUB HIMALAYAN WEST BENGAL & SIKKIM    115
        MATATHWADA                            115
        JHARKHAND                             115
        SAURASHTRA & KUTCH                    115
        JAMMU & KASHMIR                       115
        MADHYA MAHARASHTRA                    115
        EAST MADHYA PRADESH                   115
        ORISSA                                115
        LAKSHADWEEP                           114
        ANDAMAN & NICOBAR ISLANDS             110
        ARUNACHAL PRADESH                      97
        Name: SUBDIVISION, dtype: int64
```

TAMIL NADU

In [4]: `dat1=df[df["SUBDIVISION"]=="TAMIL NADU"]`
`dat1`

Out[4]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
3427	3427	TAMIL NADU	1901	24.5	39.1	21.7	36.0	74.0	41.8	49.3	67.9	191.1	122.3	212.3
3428	3428	TAMIL NADU	1902	67.2	9.8	25.1	21.9	84.7	39.3	55.1	113.8	98.6	282.2	174.9
3429	3429	TAMIL NADU	1903	19.3	7.8	1.7	18.2	128.5	58.5	72.6	115.0	210.4	128.1	200.5
3430	3430	TAMIL NADU	1904	35.2	0.1	0.7	19.5	121.9	34.9	89.0	40.4	85.7	163.2	23.0
3431	3431	TAMIL NADU	1905	6.5	7.5	17.2	64.8	83.7	49.8	39.0	101.8	73.5	250.4	123.7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
3537	3537	TAMIL NADU	2011	4.3	11.2	8.0	91.5	33.4	56.0	45.5	128.9	76.0	200.4	230.5
3538	3538	TAMIL NADU	2012	3.0	0.1	2.5	35.5	41.9	30.1	46.5	98.0	84.9	235.2	44.5
3539	3539	TAMIL NADU	2013	3.9	30.9	30.0	20.3	42.0	54.6	42.7	110.7	113.5	127.9	112.3
3540	3540	TAMIL NADU	2014	7.4	6.1	8.1	8.3	139.1	47.8	50.6	117.7	98.9	252.2	110.8
3541	3541	TAMIL NADU	2015	8.3	2.3	21.7	108.8	112.4	62.4	43.5	81.6	98.4	132.6	379.8

115 rows × 20 columns

In [ ]: `dat1=df[df["SUBDIVISION"]=="TAMIL NADU"]`
`dat1`

In [5]:
```python
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()
```
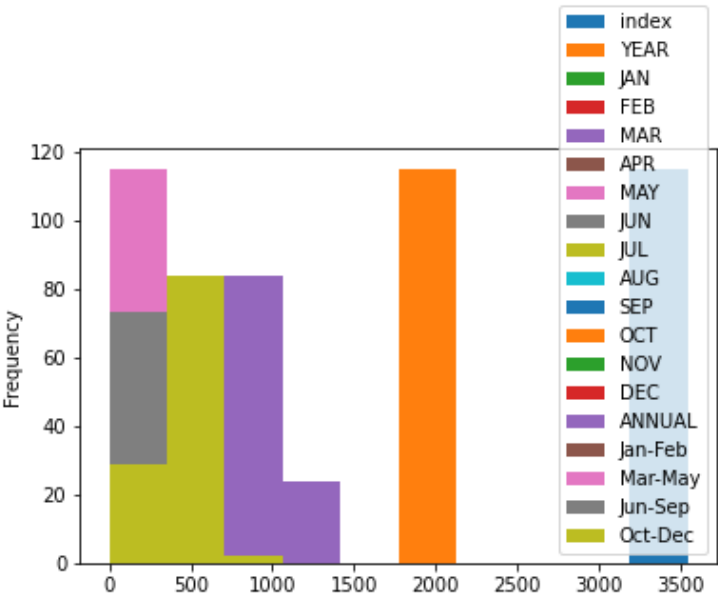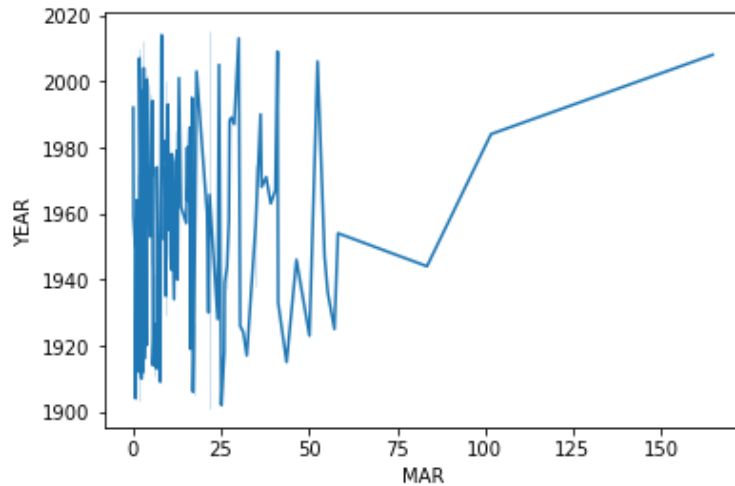


```
<Figure size 4320x2160 with 0 Axes>
```
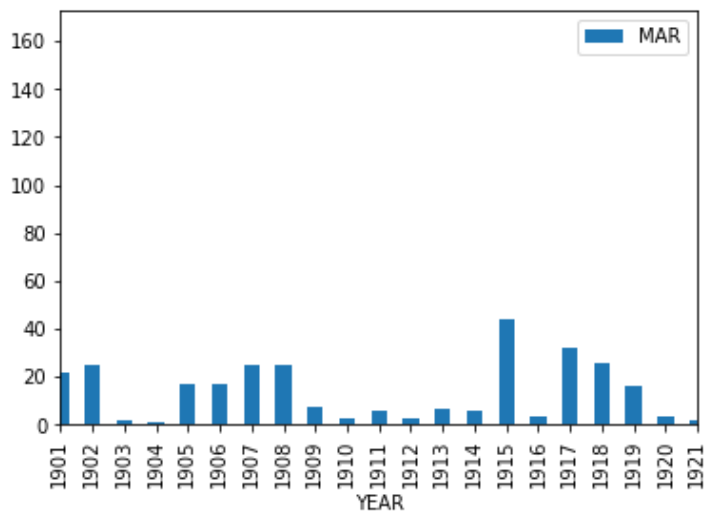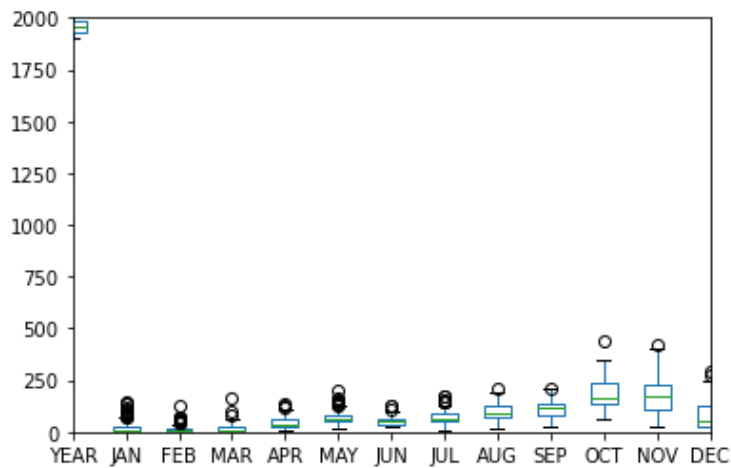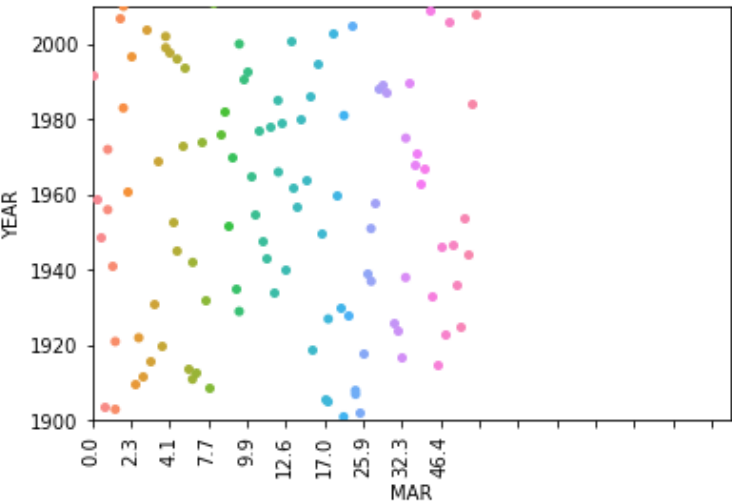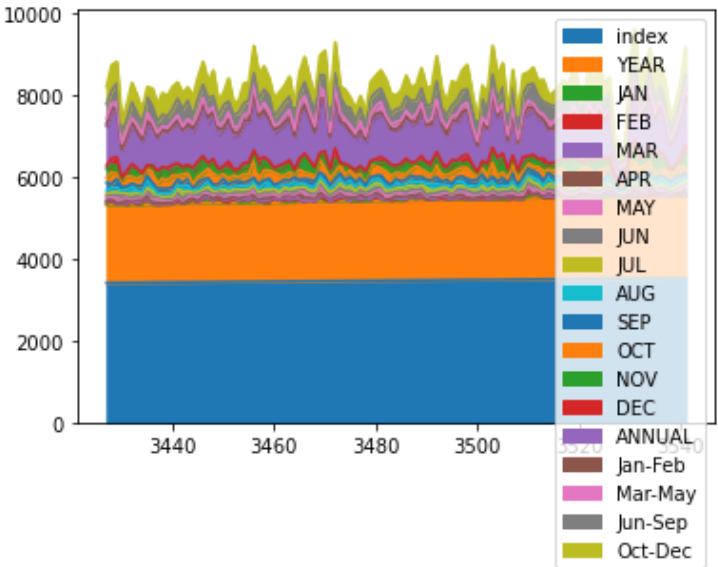
Out[5]: <AxesSubplot:ylabel='Frequency'>

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


ORISSA

In [7]:
```python
dat2=df[df["SUBDIVISION"]=="ORISSA"]
dat2
```

Out[7]:

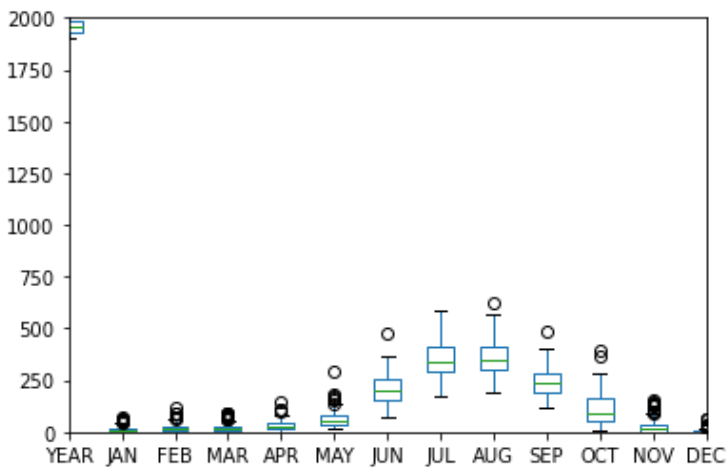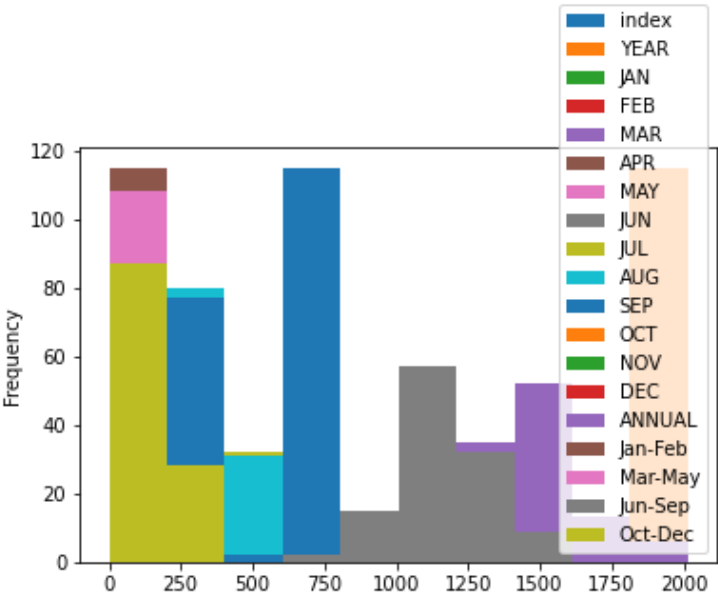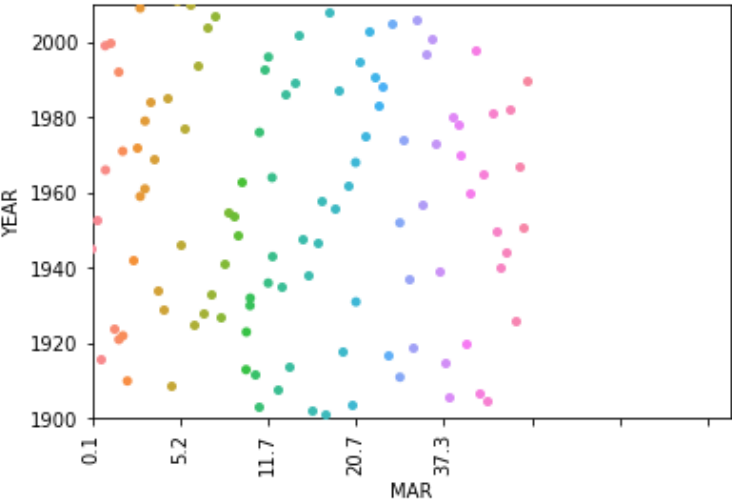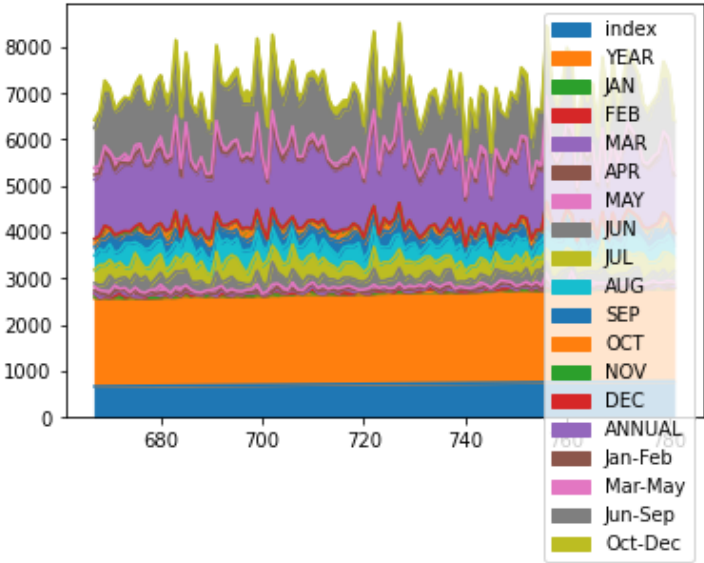|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NO
667	667	ORISSA	1901	39.5	65.1	16.1	51.6	79.0	78.2	288.4	307.7	185.3	76.6	96.
668	668	ORISSA	1902	3.4	0.2	14.2	101.1	56.7	108.3	437.4	349.1	202.7	33.2	13.
669	669	ORISSA	1903	19.7	18.9	10.5	34.6	73.3	154.3	410.4	295.2	265.6	228.5	46.
670	670	ORISSA	1904	0.2	12.2	20.6	10.1	100.2	342.9	336.7	350.4	227.8	111.8	0.
671	671	ORISSA	1905	24.3	17.2	66.3	56.9	107.5	92.0	330.1	281.4	344.1	36.4	0.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
777	777	ORISSA	2011	3.7	16.2	4.9	58.2	75.6	210.1	199.6	358.6	398.7	20.2	0.
778	778	ORISSA	2012	50.8	3.6	0.9	34.8	21.3	169.6	324.3	417.0	242.4	66.0	72.
779	779	ORISSA	2013	3.3	7.8	2.1	53.6	57.7	272.6	380.0	254.9	208.1	391.0	1.
780	780	ORISSA	2014	0.0	17.6	25.1	11.7	111.9	92.2	496.2	386.3	281.1	111.8	2.
781	781	ORISSA	2015	15.1	3.3	10.5	67.6	32.6	238.6	294.8	264.0	237.0	24.7	6.

115 rows × 20 columns

In [8]:
```python
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()
```
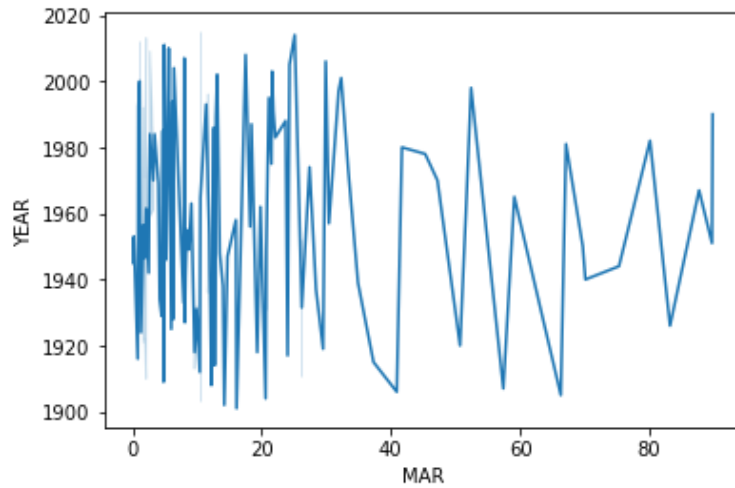


```
<Figure size 4320x2160 with 0 Axes>
```
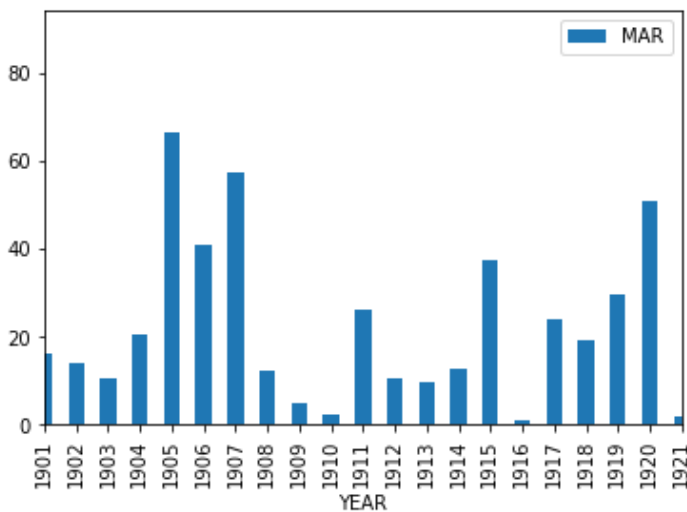
In [9]:
```python
sns.lineplot(x=dat2["MAR"],y=dat2["YEAR"])
plt.show()
```

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

KERALA

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

Out[4]:

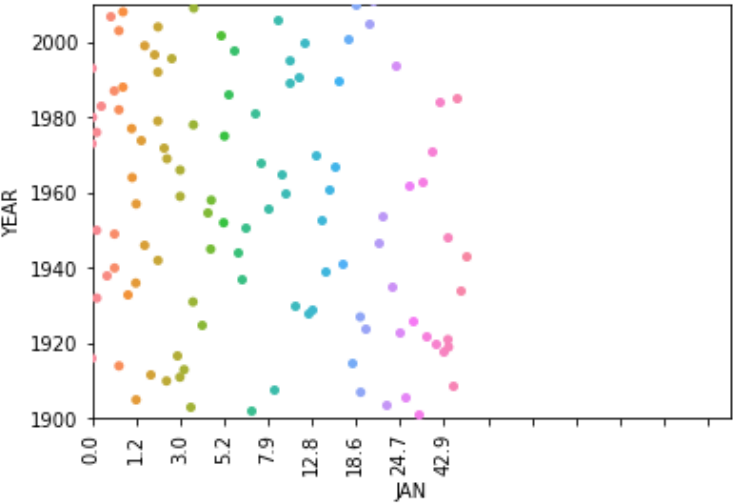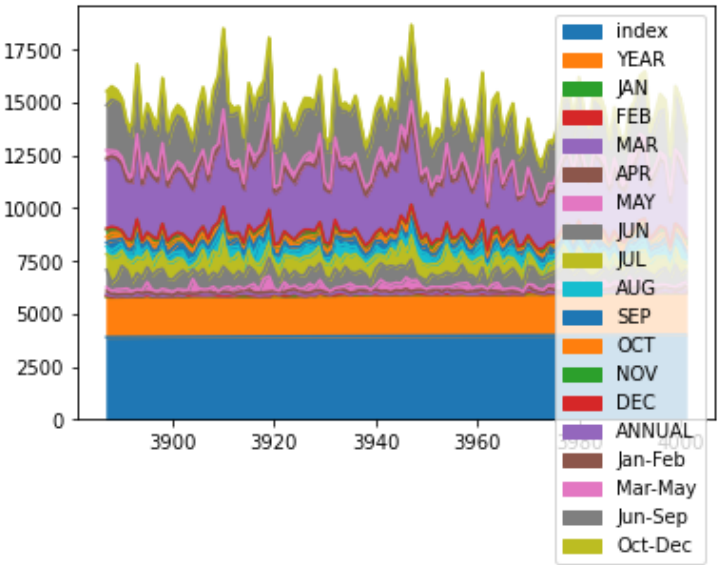|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
3887	3887	KERALA	1901	28.7	44.7	51.6	160.0	174.7	824.6	743.0	357.5	197.7	266.9
3888	3888	KERALA	1902	6.7	2.6	57.3	83.9	134.5	390.9	1205.0	315.8	491.6	358.4
3889	3889	KERALA	1903	3.2	18.6	3.1	83.6	249.7	558.6	1022.5	420.2	341.8	354.1
3890	3890	KERALA	1904	23.7	3.0	32.2	71.5	235.7	1098.2	725.5	351.8	222.7	328.1
3891	3891	KERALA	1905	1.2	22.3	9.4	105.9	263.3	850.2	520.5	293.6	217.2	383.5
...	...	...	...	...	...	...	...	...	...	...	...	...	...
3997	3997	KERALA	2011	20.5	45.7	24.1	165.2	124.2	788.5	536.8	492.7	391.2	227.2
3998	3998	KERALA	2012	7.4	11.0	21.0	171.1	95.3	430.3	362.6	501.6	241.1	187.5
3999	3999	KERALA	2013	3.9	40.1	49.9	49.3	119.3	1042.7	830.2	369.7	318.6	259.9
4000	4000	KERALA	2014	4.6	10.3	17.9	95.7	251.0	454.4	677.8	733.9	298.8	355.5
4001	4001	KERALA	2015	3.1	5.8	50.1	214.1	201.8	563.6	406.0	252.2	292.9	308.1

115 rows × 20 columns

In [5]:
```python
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()
```
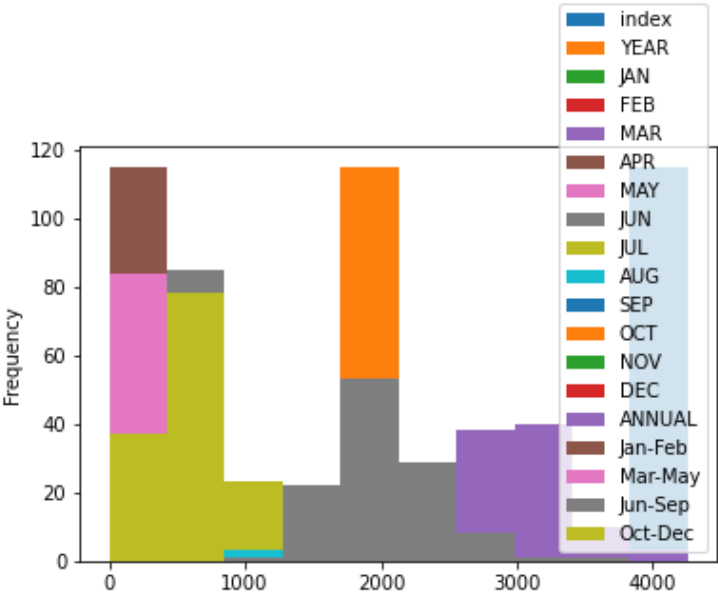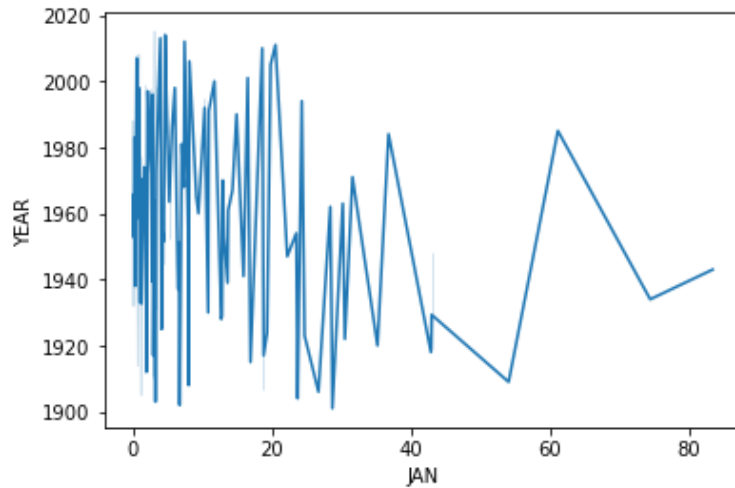


```
<Figure size 4320x2160 with 0 Axes>
```
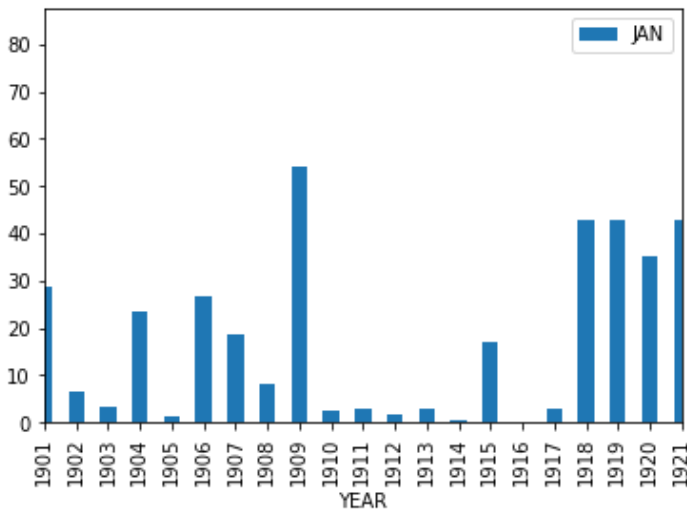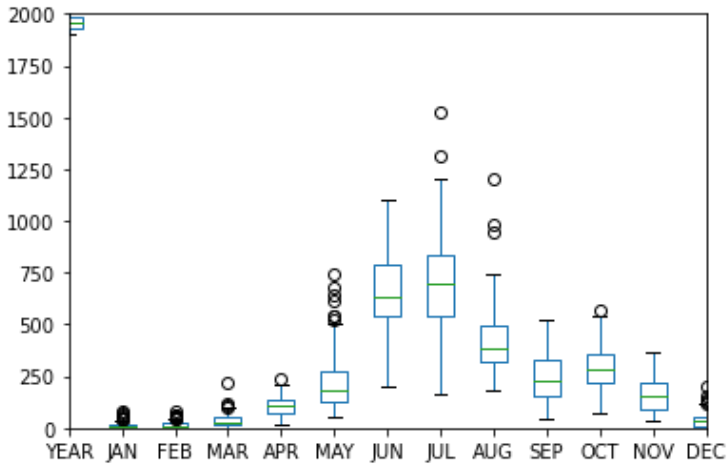
Out[5]: <AxesSubplot:ylabel='Frequency'>

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


SOUTH INTERIOR KARNATAKA

In [7]:
```
dat2=df[df["SUBDIVISION"]=="SOUTH INTERIOR KARNATAKA"]
dat2
```

Out[7]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	N(
3772	3772	SOUTH INTERIOR KARNATAKA	1901	4.9	31.8	3.0	32.7	109.6	106.0	210.0	109.2	140.8	170.1	72
3773	3773	SOUTH INTERIOR KARNATAKA	1902	1.9	0.5	6.7	42.6	97.7	91.7	210.0	82.1	138.4	219.1	44
3774	3774	SOUTH INTERIOR KARNATAKA	1903	0.3	0.0	1.1	11.6	125.1	129.7	284.4	155.7	197.1	154.2	186
3775	3775	SOUTH INTERIOR KARNATAKA	1904	1.0	0.5	5.2	43.5	144.7	167.9	197.1	73.2	89.6	120.4	2
3776	3776	SOUTH INTERIOR KARNATAKA	1905	1.7	7.9	14.2	23.6	118.6	95.9	148.4	140.6	43.1	142.8	22
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
3882	3882	SOUTH INTERIOR KARNATAKA	2011	2.1	12.4	12.4	80.2	83.5	177.1	202.4	199.5	111.2	144.8	56
3883	3883	SOUTH INTERIOR KARNATAKA	2012	4.6	5.5	8.1	99.0	45.6	81.8	144.7	236.5	100.6	62.8	82
3884	3884	SOUTH INTERIOR KARNATAKA	2013	0.5	10.1	11.7	34.6	95.6	176.2	307.4	151.7	191.8	103.7	24
3885	3885	SOUTH INTERIOR KARNATAKA	2014	0.4	2.4	17.7	46.7	130.5	106.8	271.6	254.6	161.6	152.9	20
3886	3886	SOUTH INTERIOR KARNATAKA	2015	1.7	0.2	24.4	80.5	125.3	218.7	112.0	136.6	164.5	106.1	138

115 rows × 20 columns

In [8]:

```python
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()
```
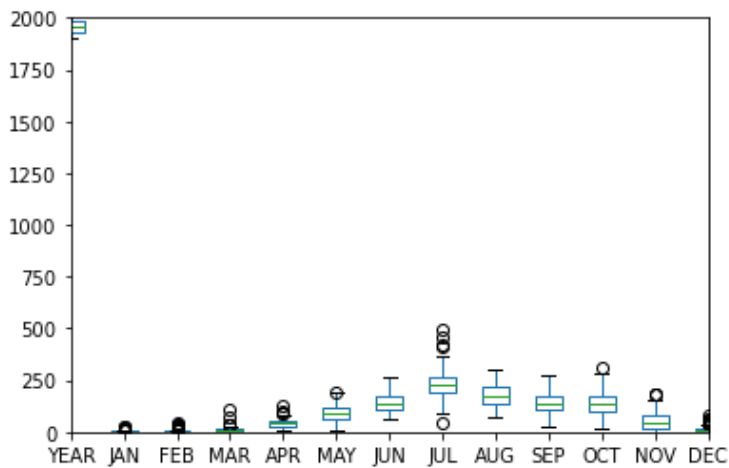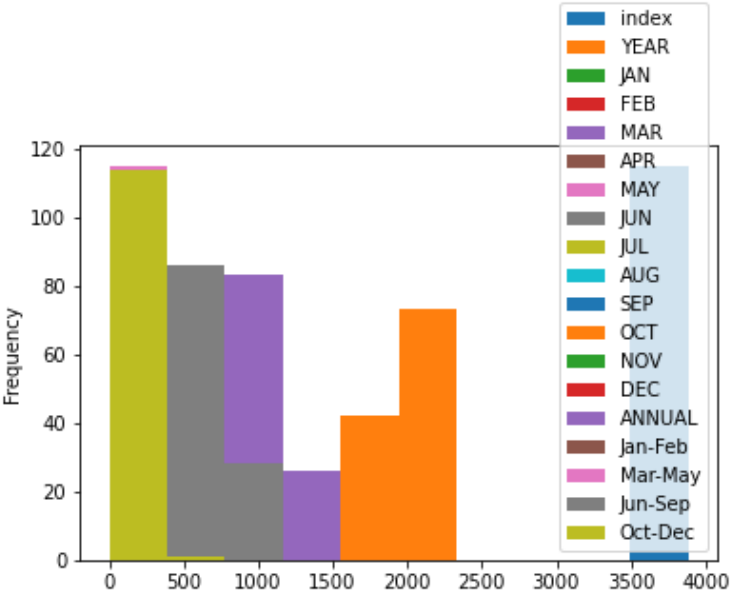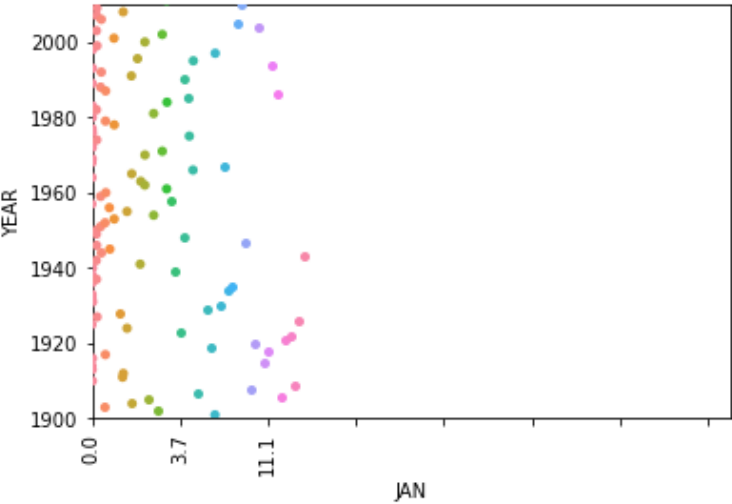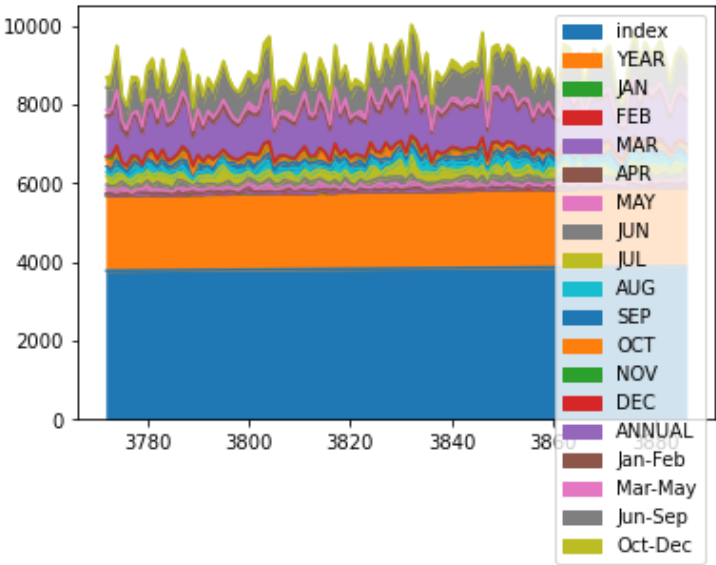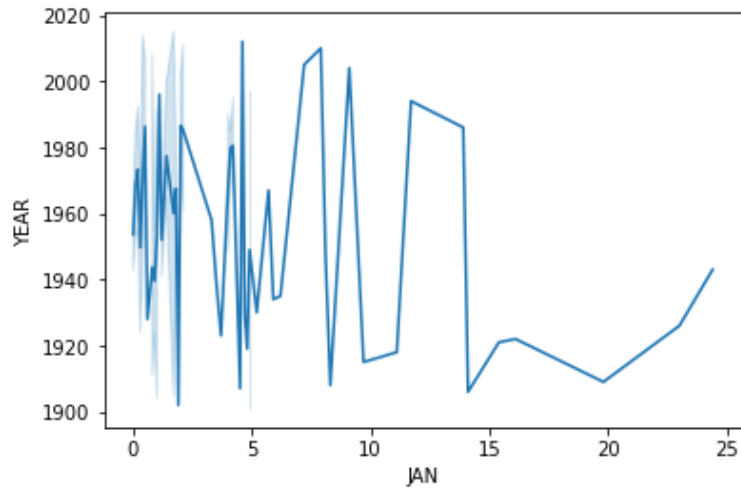


```
<Figure size 4320x2160 with 0 Axes>
```

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

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

In [2]:
```python
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]:  TELANGANA                             115
         WEST RAJASTHAN                        115
         UTTARAKHAND                           115
         GANGETIC WEST BENGAL                  115
         KONKAN & GOA                          115
         WEST MADHYA PRADESH                   115
         EAST UTTAR PRADESH                    115
         SUB HIMALAYAN WEST BENGAL & SIKKIM    115
         EAST MADHYA PRADESH                   115
         COASTAL KARNATAKA                     115
         ORISSA                                115
         HIMACHAL PRADESH                      115
         EAST RAJASTHAN                        115
         HARYANA DELHI & CHANDIGARH            115
         SOUTH INTERIOR KARNATAKA              115
         BIHAR                                 115
         WEST UTTAR PRADESH                    115
         NORTH INTERIOR KARNATAKA              115
         MATATHWADA                            115
         MADHYA MAHARASHTRA                    115
         GUJARAT REGION                        115
         ASSAM & MEGHALAYA                     115
         KERALA                                115
         SAURASHTRA & KUTCH                    115
         CHHATTISGARH                          115
         JAMMU & KASHMIR                       115
         COASTAL ANDHRA PRADESH                115
         TAMIL NADU                            115
         PUNJAB                                115
         JHARKHAND                             115
         VIDARBHA                              115
         NAGA MANI MIZO TRIPURA                115
         RAYALSEEMA                            115
         LAKSHADWEEP                           114
         ANDAMAN & NICOBAR ISLANDS             110
         ARUNACHAL PRADESH                      97
         Name: SUBDIVISION, dtype: int64
```

GANGETIC WEST BENGAL

In [4]: `dat1=df[df["SUBDIVISION"]=="GANGETIC WEST BENGAL"]`
`dat1`

Out[4]:

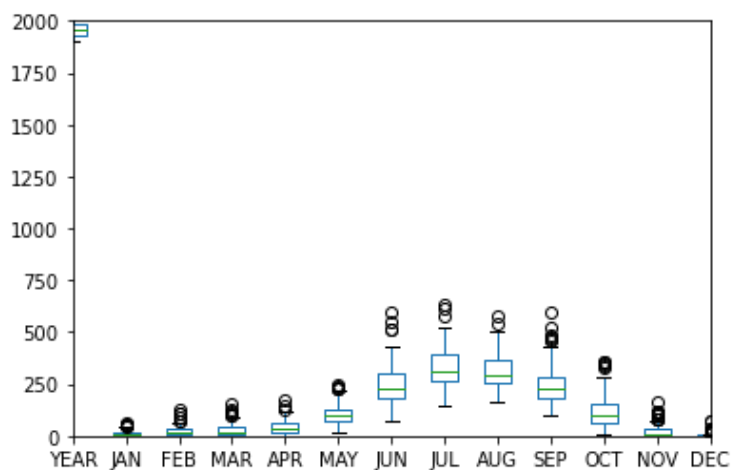|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
552	552	GANGETIC WEST BENGAL	1901	37.1	58.4	3.9	64.1	121.7	198.0	280.8	275.7	313.5	51.1	83.
553	553	GANGETIC WEST BENGAL	1902	0.0	1.2	44.2	103.8	161.6	140.9	347.8	264.8	230.5	32.5	10.
554	554	GANGETIC WEST BENGAL	1903	17.5	24.6	37.3	30.6	78.5	201.7	179.6	277.6	300.7	198.0	8.
555	555	GANGETIC WEST BENGAL	1904	0.1	23.9	35.6	17.5	160.2	286.7	435.3	241.7	142.8	35.1	4.
556	556	GANGETIC WEST BENGAL	1905	30.9	49.6	84.7	84.9	156.8	70.9	525.5	263.6	287.6	107.3	0.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
662	662	GANGETIC WEST BENGAL	2011	2.5	2.7	40.5	75.0	132.6	434.5	219.9	443.2	295.9	36.9	1.
663	663	GANGETIC WEST BENGAL	2012	40.7	15.3	4.4	57.7	44.2	146.6	315.0	261.4	246.9	64.2	47.
664	664	GANGETIC WEST BENGAL	2013	2.5	10.0	4.8	45.6	195.9	233.4	263.2	401.4	254.0	353.2	0.
665	665	GANGETIC WEST BENGAL	2014	0.9	42.2	19.9	1.9	124.4	193.6	298.7	292.6	229.5	56.9	0.
666	666	GANGETIC WEST BENGAL	2015	12.9	5.5	19.3	88.7	57.6	247.2	633.1	260.6	164.0	32.7	2.

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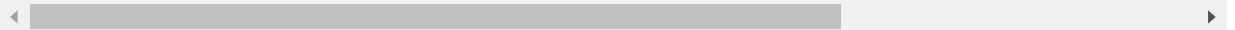
In [5]:
```python
dat1.plot.bar("YEAR","MAR")
plt.xlim(0,20)
plt.figure(figsize=(60,30))
plt.show()
dat1.plot.box()
plt.xlim(2,14)
plt.ylim(0,2000)
plt.show()
dat1.plot.area()
dat1.plot.scatter("YEAR","MAR")
sns.stripplot(x=dat1["MAR"],y=dat1["YEAR"],jitter=True)
plt.ylim(1900,2010)
plt.xlim(0,145)
plt.xticks(dat1["MAR"],rotation="vertical")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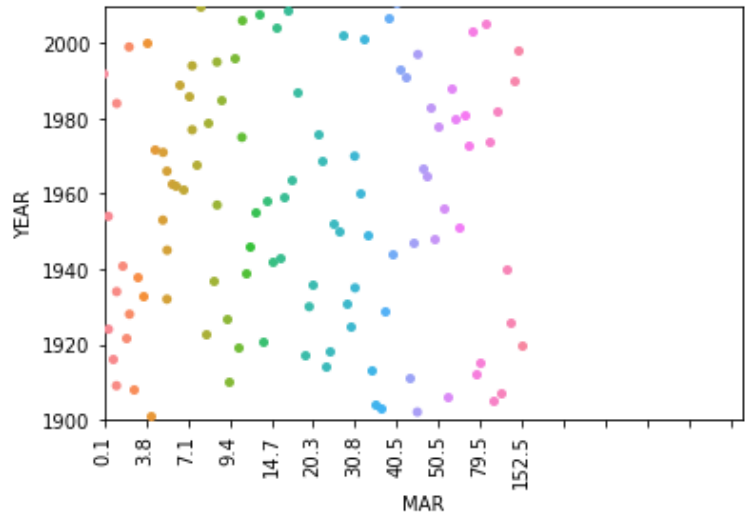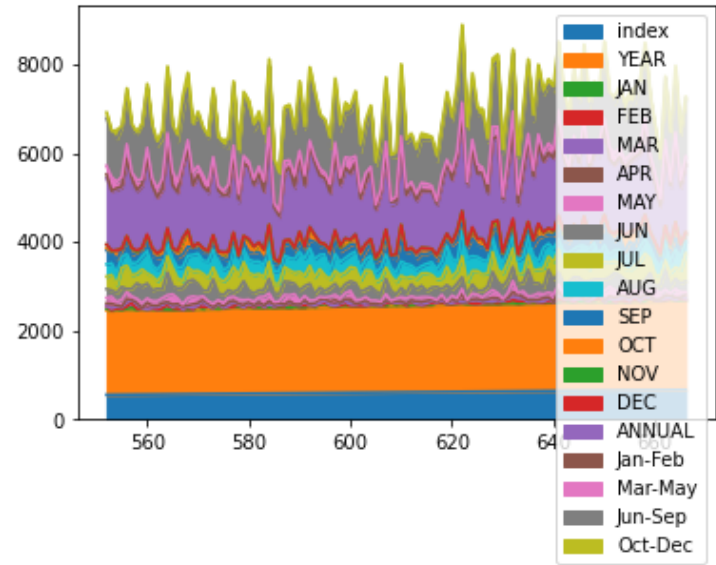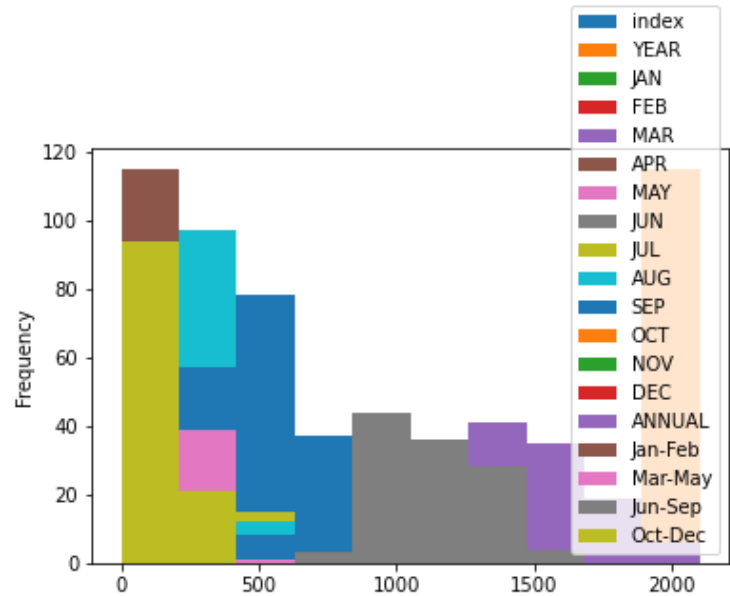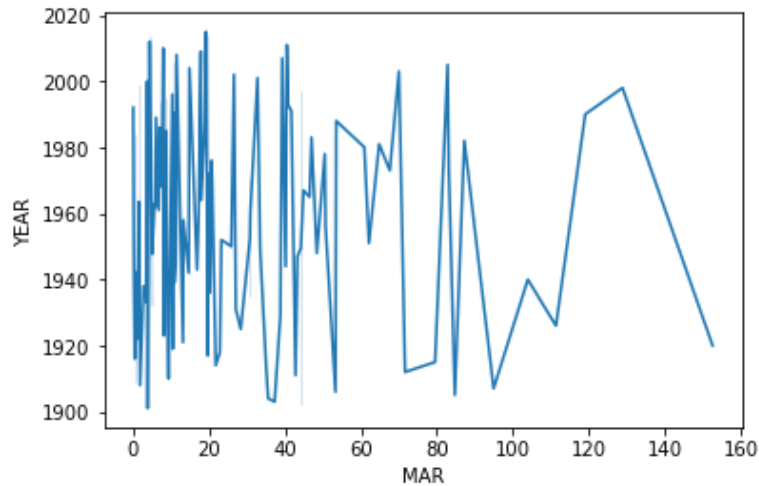


```
<Figure size 4320x2160 with 0 Axes>
```
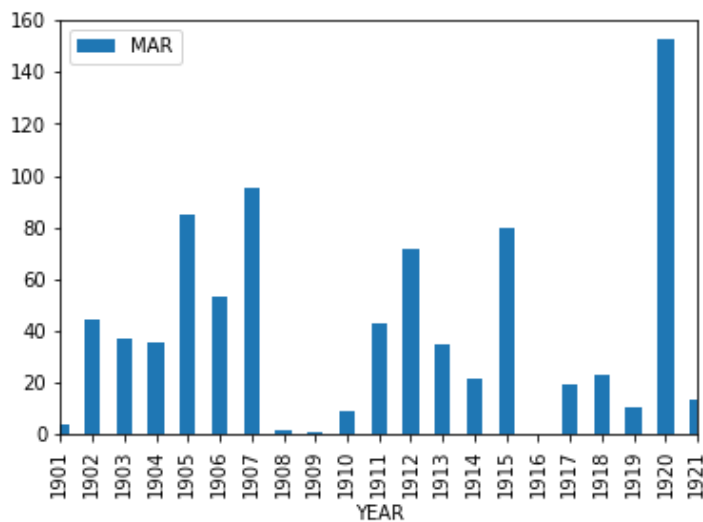
`Out[5]:` `<AxesSubplot:ylabel='Frequency'>`

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


KONKAN & GOA

In [7]:
```python
dat2=df[df["SUBDIVISION"]=="KONKAN & GOA"]
dat2
```

Out[7]:

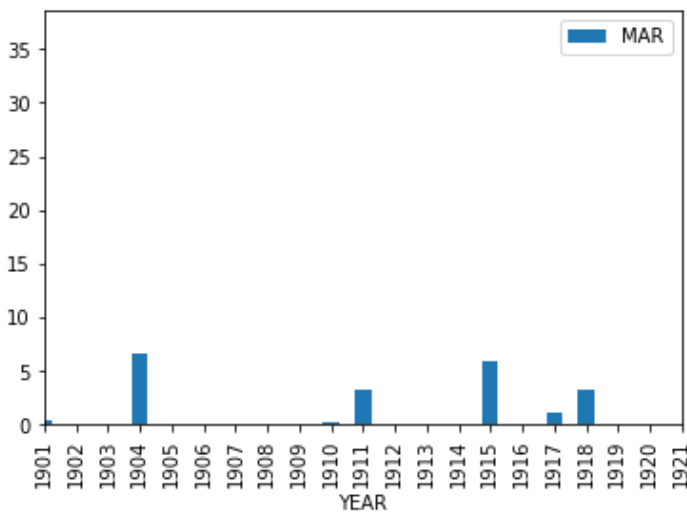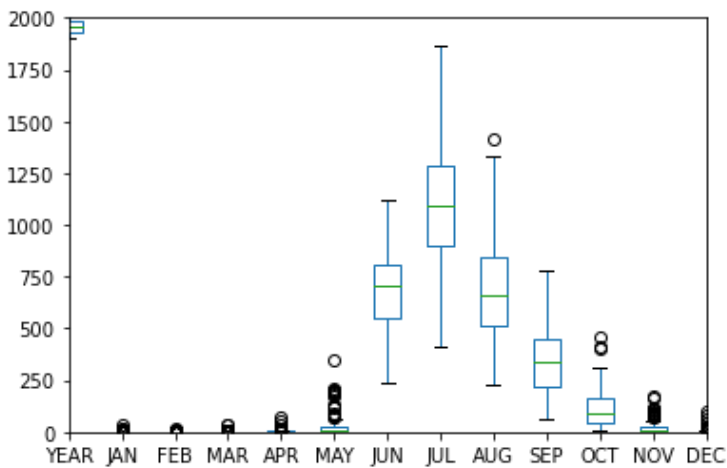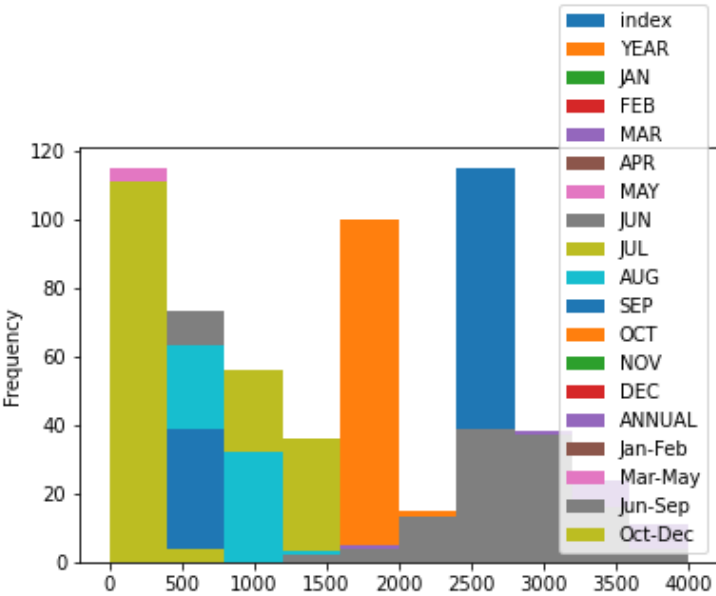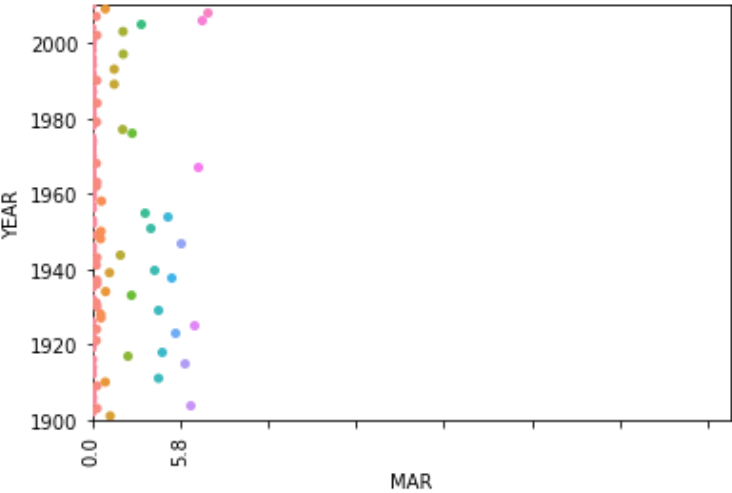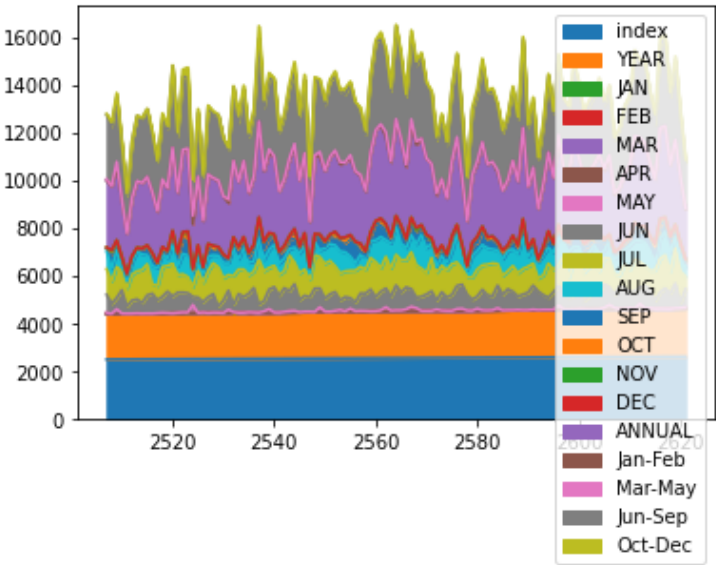|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	N
2507	2507	KONKAN & GOA	1901	5.6	0.1	0.4	35.7	19.9	746.1	1075.5	748.0	117.4	38.6	
2508	2508	KONKAN & GOA	1902	0.3	0.0	0.0	0.4	7.6	428.2	943.6	515.1	613.8	74.3	
2509	2509	KONKAN & GOA	1903	0.0	0.0	0.1	0.0	201.1	470.5	1298.6	673.9	285.1	140.8	
2510	2510	KONKAN & GOA	1904	0.0	0.1	6.6	6.3	4.6	975.8	771.7	321.3	217.0	90.3	
2511	2511	KONKAN & GOA	1905	0.1	0.1	0.0	0.4	8.6	293.7	770.6	305.5	208.3	83.5	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2617	2617	KONKAN & GOA	2011	0.0	0.0	0.0	3.4	1.1	857.0	1384.1	987.9	468.3	120.3	
2618	2618	KONKAN & GOA	2012	0.0	0.0	0.0	0.6	1.1	633.0	928.5	762.5	515.3	175.1	
2619	2619	KONKAN & GOA	2013	1.8	5.4	0.1	0.1	18.5	1028.3	1478.5	497.6	340.7	149.3	
2620	2620	KONKAN & GOA	2014	1.3	5.3	1.8	0.7	21.3	238.2	1293.2	658.0	419.5	98.7	
2621	2621	KONKAN & GOA	2015	2.7	0.0	36.8	3.6	11.3	764.0	526.5	377.3	240.9	91.4	

115 rows × 20 columns

In [8]:
```python
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()
```
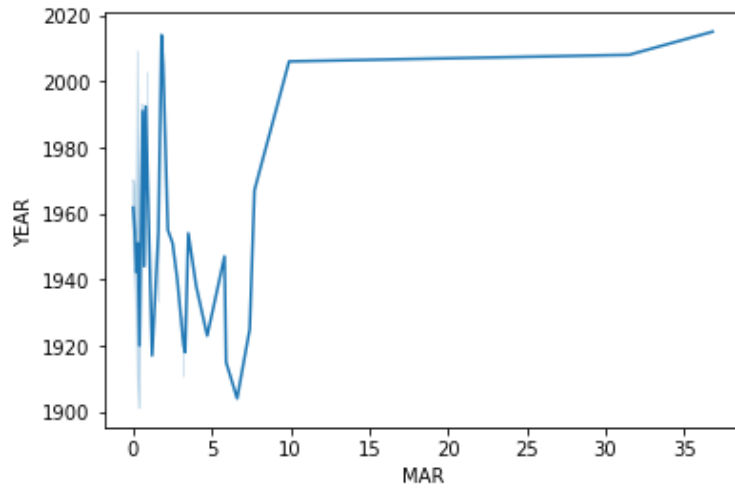


```
<Figure size 4320x2160 with 0 Axes>
```

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

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

In [2]: ```python
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]:
```
TAMIL NADU                             115
GUJARAT REGION                         115
SOUTH INTERIOR KARNATAKA               115
CHHATTISGARH                           115
WEST UTTAR PRADESH                     115
SAURASHTRA & KUTCH                      115
EAST UTTAR PRADESH                     115
KONKAN & GOA                           115
JHARKHAND                              115
ASSAM & MEGHALAYA                      115
NAGA MANI MIZO TRIPURA                 115
WEST MADHYA PRADESH                    115
JAMMU & KASHMIR                        115
HIMACHAL PRADESH                       115
RAYALSEEMA                             115
HARYANA DELHI & CHANDIGARH             115
PUNJAB                                 115
MADHYA MAHARASHTRA                     115
SUB HIMALAYAN WEST BENGAL & SIKKIM     115
EAST RAJASTHAN                         115
BIHAR                                  115
KERALA                                 115
COASTAL ANDHRA PRADESH                 115
WEST RAJASTHAN                         115
EAST MADHYA PRADESH                    115
UTTARAKHAND                            115
GANGETIC WEST BENGAL                   115
MATATHWADA                             115
TELANGANA                              115
ORISSA                                 115
COASTAL KARNATAKA                      115
NORTH INTERIOR KARNATAKA               115
VIDARBHA                               115
LAKSHADWEEP                            114
ANDAMAN & NICOBAR ISLANDS              110
ARUNACHAL PRADESH                       97
Name: SUBDIVISION, dtype: int64
```

JAMMU & KASHMIR

In [4]: `dat1=df[df["SUBDIVISION"]=="JAMMU & KASHMIR"]`
`dat1`

Out[4]:

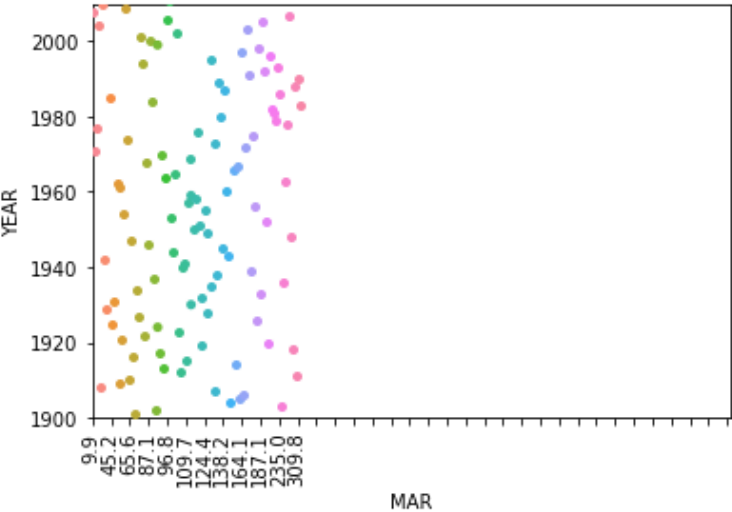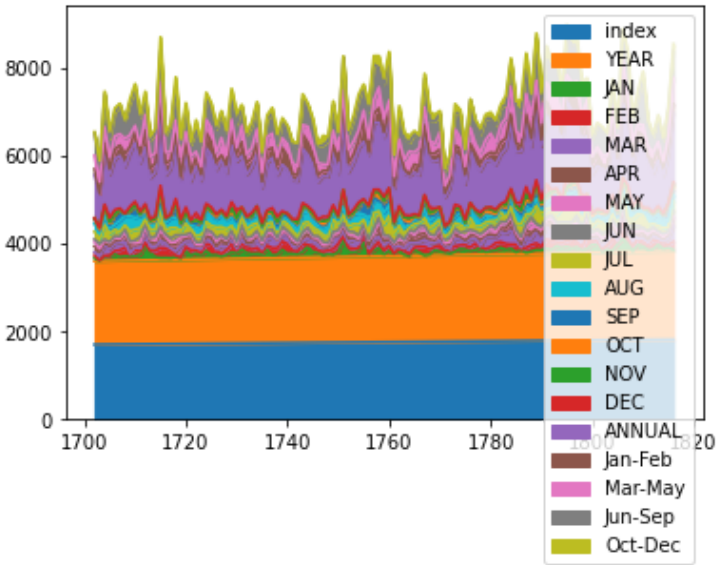|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1702	1702	JAMMU & KASHMIR	1901	66.4	69.3	69.6	132.2	105.8	53.4	171.7	181.3	101.8	24.1
1703	1703	JAMMU & KASHMIR	1902	6.5	9.7	91.3	100.5	70.7	113.3	108.4	136.9	62.2	15.1
1704	1704	JAMMU & KASHMIR	1903	96.2	21.5	238.6	58.7	57.3	18.9	332.5	218.6	176.9	10.7
1705	1705	JAMMU & KASHMIR	1904	110.6	17.3	145.2	64.5	67.8	25.9	182.3	132.2	62.3	50.0
1706	1706	JAMMU & KASHMIR	1905	146.7	76.3	161.4	71.7	65.2	43.3	145.2	111.5	239.7	5.8
...	...	...	...	...	...	...	...	...	...	...	...	...	...
1812	1812	JAMMU & KASHMIR	2011	43.4	211.6	97.8	89.0	32.4	72.5	81.6	131.2	72.0	19.4
1813	1813	JAMMU & KASHMIR	2012	150.9	95.8	45.2	86.6	48.9	32.6	118.8	264.9	106.7	15.7
1814	1814	JAMMU & KASHMIR	2013	52.2	136.4	41.9	47.4	47.4	80.5	125.1	219.1	41.2	34.4
1815	1815	JAMMU & KASHMIR	2014	75.8	64.0	153.1	76.1	52.7	25.3	100.5	134.6	362.8	32.2
1816	1816	JAMMU & KASHMIR	2015	27.9	187.2	341.4	173.3	64.6	121.4	233.2	129.2	130.2	87.1

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()
```
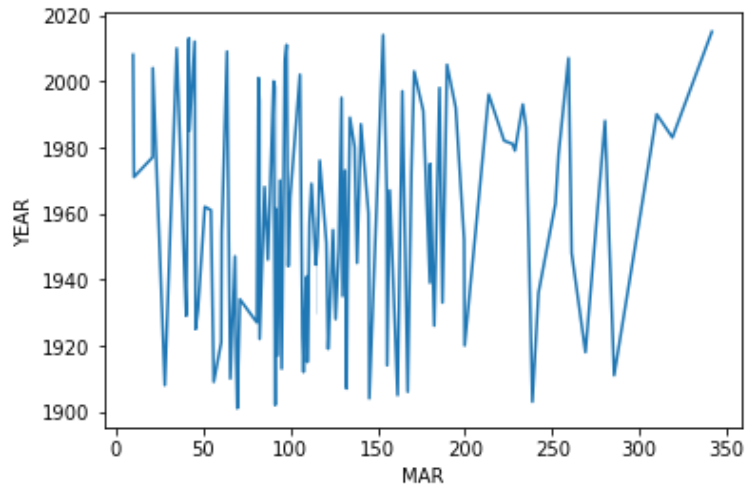


```
<Figure size 4320x2160 with 0 Axes>
```
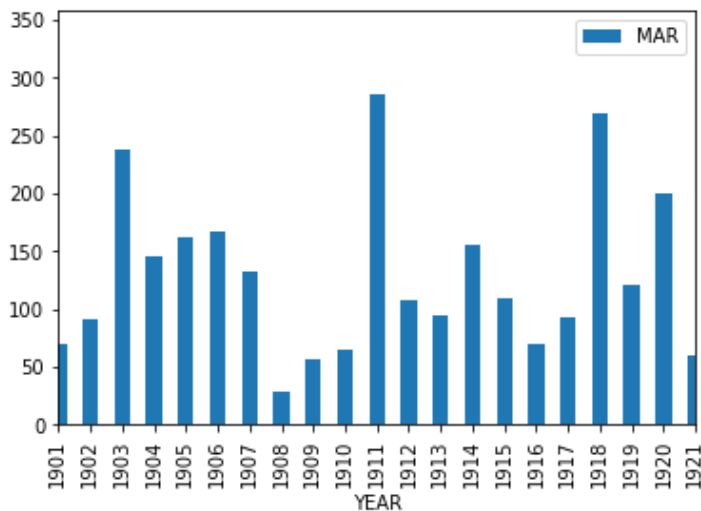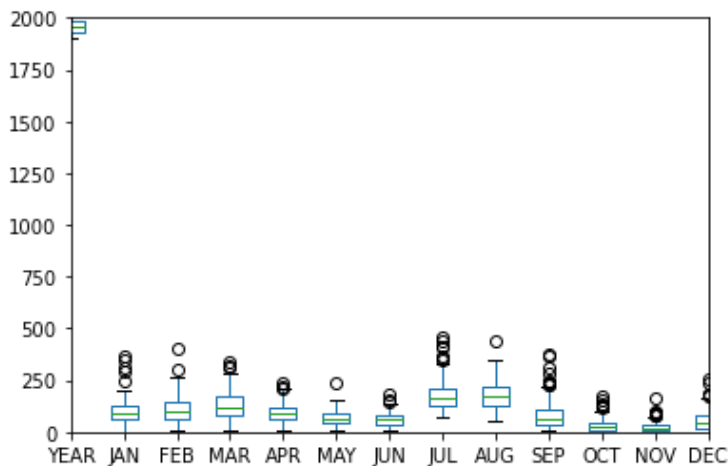
Out[5]: <AxesSubplot:ylabel='Frequency'>
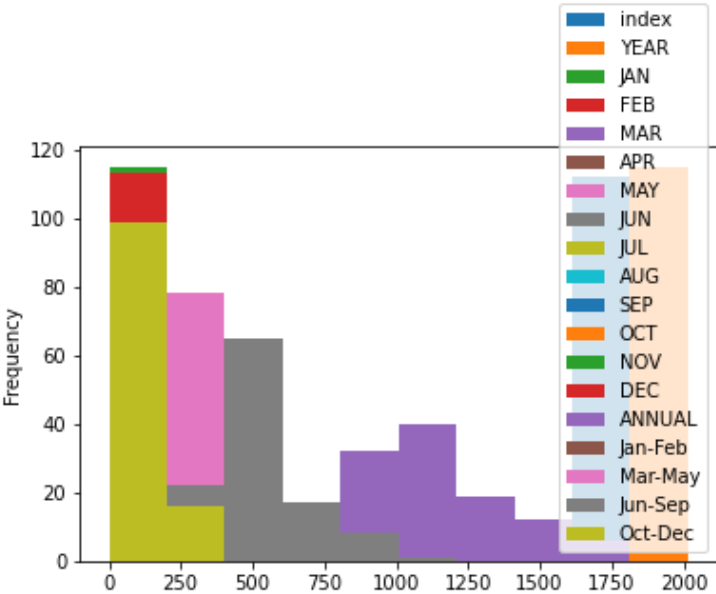
In [6]:
```python
sns.lineplot(x=dat1["MAR"],y=dat1["YEAR"])
plt.show()
```


NORTH INTERIOR KARNATAKA

In [7]:
```python
dat2=df[df["SUBDIVISION"]=="NORTH INTERIOR KARNATAKA"]
dat2
```

Out[7]:

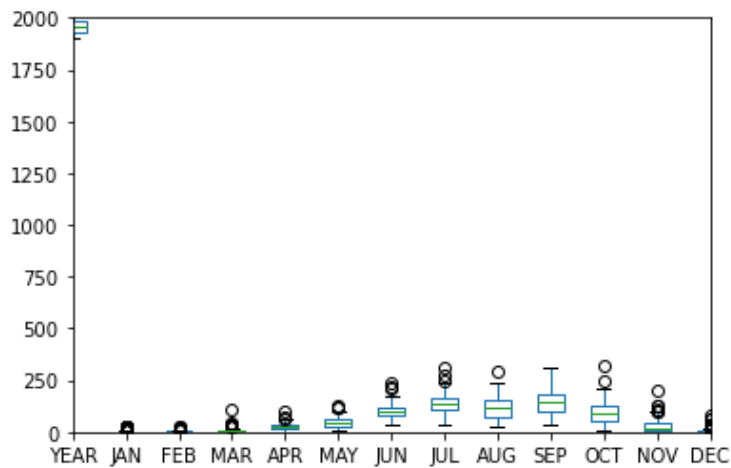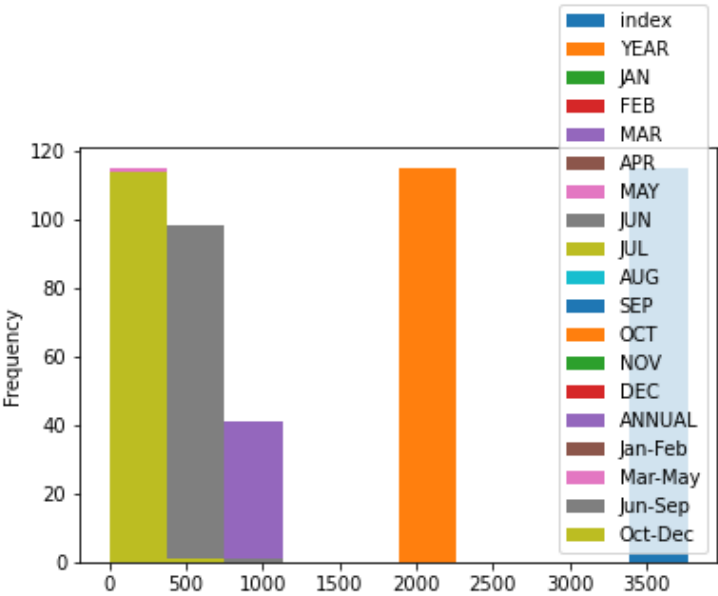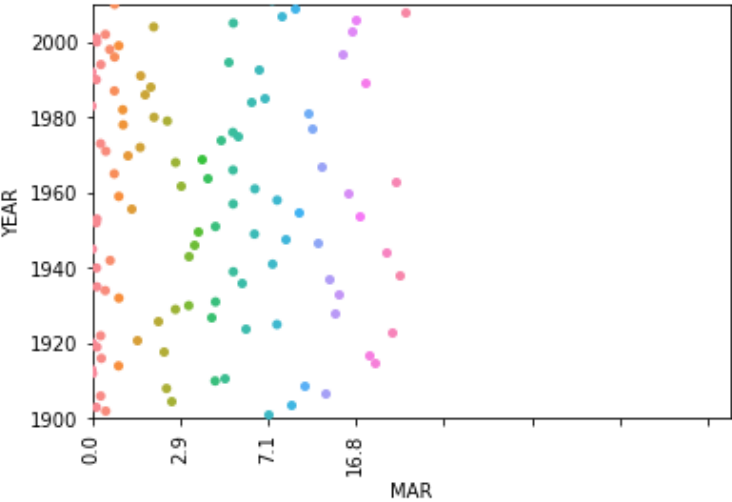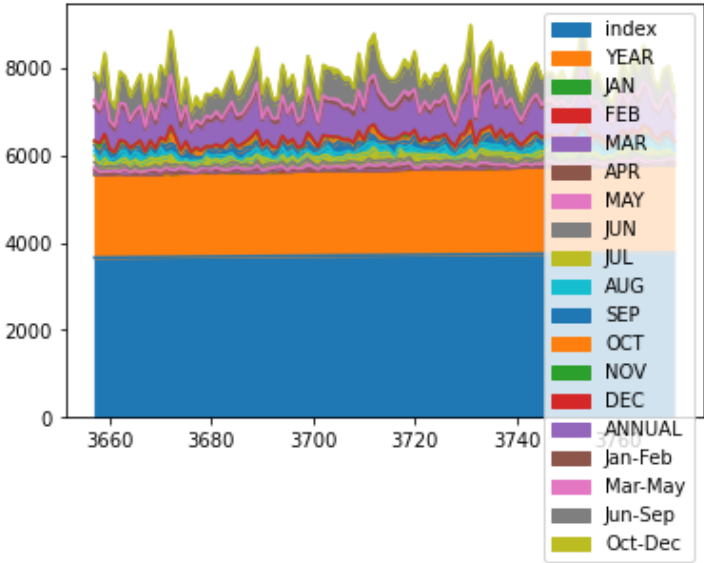|	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
3657	3657	NORTH INTERIOR KARNATAKA	1901	3.5	18.8	7.1	67.2	65.5	120.5	151.9	115.1	128.8	80.0	13.0
3658	3658	NORTH INTERIOR KARNATAKA	1902	0.0	0.0	0.3	22.5	34.4	111.3	83.2	78.1	146.7	118.8	35.7
3659	3659	NORTH INTERIOR KARNATAKA	1903	3.5	0.0	0.1	6.9	53.4	102.8	209.4	146.4	189.3	166.4	34.3
3660	3660	NORTH INTERIOR KARNATAKA	1904	0.2	0.3	8.5	11.0	46.3	120.6	91.6	48.5	165.1	86.5	0.0
3661	3661	NORTH INTERIOR KARNATAKA	1905	0.0	6.0	2.6	16.0	51.2	99.6	60.1	139.2	42.2	85.0	4.4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
3767	3767	NORTH INTERIOR KARNATAKA	2011	0.5	7.2	7.2	41.2	46.8	101.3	150.8	152.0	69.0	73.4	5.7
3768	3768	NORTH INTERIOR KARNATAKA	2012	28.5	6.2	0.4	35.4	19.5	60.0	114.5	105.5	79.2	85.2	46.5
3769	3769	NORTH INTERIOR KARNATAKA	2013	1.2	6.1	3.0	25.4	47.4	99.4	160.7	73.9	201.0	101.0	4.2
3770	3770	NORTH INTERIOR KARNATAKA	2014	0.0	6.1	29.2	26.4	93.0	50.4	136.8	205.2	90.2	80.3	25.0
3771	3771	NORTH INTERIOR KARNATAKA	2015	2.4	0.0	27.5	50.8	45.3	89.6	38.5	78.4	150.8	61.2	5.7

115 rows × 20 columns

In [8]:
```python
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()
```



```
<Figure size 4320x2160 with 0 Axes>
```

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