1. Test livre

In [3]:
```
import pandas as pa

T=pa.read_csv('data/Top14.csv')
T.head()
```

Out[3]:

	ID	Nom	Âge	Taille	Poids	Nationalité	Poste	Matchs	E	T	P
0	13	JACQUET Loïc	36	198	117	France	2ème ligne	10	NaN	NaN	NaN
1	30	COMBEZOU Thomas	35	182	96	France	Centre	13	1.0	NaN	NaN
2	93	CHOULY Damien	36	192	106	France	3ème ligne	13	NaN	NaN	NaN
3	323	PICAMOLES Louis	36	192	118	France	3ème ligne	10	2.0	NaN	NaN
4	330	OUEDRAOGO Fulgence	35	191	99	France	3ème ligne	8	NaN	NaN	NaN

In [18]:
```
T1=T.query('Poste=="Centre" and Taille<185')
```

In [19]:
```
T1
```

Out[19]:

	ID	Nom	Âge	Taille	Poids	Nationalité	Poste	Matchs	E	T
1	30	COMBEZOU Thomas	35	182	96	France	Centre	13	1.0	NaN
19	1076	AGUILLON Pierre	34	180	93	France	Centre	6	NaN	NaN
20	1079	FOFANA Wesley	34	182	93	France	Centre	1	NaN	NaN
28	1092	BARRAQUE Jean-Pascal	30	182	86	France	Centre	9	1.0	NaN
34	1118	DANTY Jonathan	29	181	107	France	Centre	7	NaN	NaN
55	1205	CHAVANCY Henry	33	181	97	France	Centre	8	NaN	NaN
80	1333	LAMERAT Rémi	32	184	105	France	Centre	7	NaN	NaN

	ID	Nom	Âge	Taille	Poids	Nationalité	Poste	Matchs	E	T
87	1370	SINZELLE Jérémy	31	184	95	France	Centre	9	NaN	NaN
102	1501	REGARD Thibaut	28	180	95	France	Centre	15	3.0	NaN
103	1509	TAUMOEPEAU Afusipa	32	184	100	Australie	Centre	12	5.0	NaN
109	1616	DUBIÉ Jean-Baptiste	32	181	86	France	Centre	11	NaN	NaN
162	2477	KLEMENCZAK Olivier	25	181	90	France	Centre	11	3.0	NaN
188	2874	OLDING Stuart	28	180	92	Irlande	Centre	8	NaN	2.0
197	3327	HÉRITEAU Julien	27	182	96	France	Centre	7	NaN	NaN
223	3571	NAQALEVU Apisai	32	184	111	Fidji	Centre	3	1.0	NaN
230	3633	PLESSIS-COUILLAUD Brieuc	27	180	95	France	Centre	2	NaN	NaN
233	3698	ARRATÉ Alex	24	180	90	France	Centre	13	NaN	NaN
237	3703	DACHARY Théo	24	184	97	France	Centre	3	NaN	NaN
256	3865	DE LA FUENTE Jerónimo	31	184	96	Argentine	Centre	7	1.0	NaN
269	4037	SAILI Francis	31	180	100	Nouvelle-Zélande	Centre	15	4.0	NaN
274	4169	REILHAC Yvan	26	182	94	France	Centre	4	NaN	NaN
275	4219	DECRON Nathan	24	184	96	France	Centre	13	NaN	NaN
305	4433	GALLETIER Guillaume	24	178	98	France	Centre	11	NaN	NaN
331	4753	DOUGLAS Wesley	25	183	90	Angleterre	Centre	7	1.0	NaN
332	4760	LUCAS Pierre	24	183	90	France	Centre	10	2.0	NaN
378	5256	DARMON Thomas	23	181	89	France	Centre	8	NaN	1.0
400	5470	LAUMAPE Ngani	28	171	103	Nouvelle-Zélande	Centre	16	NaN	NaN
418	5600	VINCENT Arthur	22	183	90	France	Centre	4	2.0	NaN

	ID	Nom	Âge	Taille	Poids	Nationalité	Poste	Matchs	E	
437	5910	DUGUIVALU Alivereti	24	180	85	Fidji	Centre	12	3.0	NaN
452	6271	LEE Nico	27	180	89	Afrique du sud	Centre	6	NaN	NaN
455	6408	MALLIA Juan Cruz	25	182	92	Argentine	Centre	5	4.0	NaN
460	6664	PAIA'AUA Duncan	27	183	92	Nouvelle-Zélande	Centre	6	2.0	NaN
471	6872	MANU Tumua	28	183	97	Nouvelle-Zélande	Centre	16	2.0	NaN
479	7026	MOEFANA Yoram	21	182	97	France	Centre	12	2.0	NaN
576	9866	BOTITU Vilimoni	23	179	93	Fidji	Centre	12	3.0	NaN
587	10749	PARISIEN Alfred	20	182	93	France	Centre	2	NaN	NaN
607	12252	VAITULUKINA Emmanuel	20	183	94	France	Centre	1	NaN	NaN
608	12284	TUWAÏ Petero	26	178	103	Fidji	Centre	1	NaN	NaN
609	12297	MASSÉ Gatien	19	182	94	France	Centre	2	NaN	NaN

In [25]:
```
E=pa.crosstab(T['Taille'],T['Poste'])
```

In [26]:
```
E
```

Out[26]:

Poste	2ème ligne	3ème ligne	Ailier	Arrière	Centre	Mêlée	Ouverture	Pilier	Talonneur
Taille									
168	0	0	0	0	0	2	0	0	0
169	0	0	0	0	0	1	0	0	0
170	0	0	0	0	0	3	0	0	0
171	0	0	1	0	1	0	1	0	0
172	0	0	0	1	0	1	0	0	0
173	0	0	1	1	0	5	2	2	0
174	0	0	2	0	0	7	2	0	1
175	0	0	0	1	0	7	3	3	1
176	0	0	0	1	0	6	1	0	0
177	0	0	4	0	0	5	5	2	0
178	0	1	5	2	2	6	3	6	4

Poste	2ème ligne	3ème ligne	Ailier	Arrière	Centre	Mêlée	Ouverture	Pilier	Talonneur
Taille									
179	0	0	1	2	1	2	1	1	2
180	0	1	5	4	8	4	7	11	10
181	0	0	4	1	5	0	1	5	9
182	0	1	8	3	9	0	1	8	7
183	0	4	4	1	6	1	5	15	10
184	0	0	4	3	7	0	2	9	6
185	0	1	6	2	6	0	0	13	4
186	0	2	6	4	3	0	2	6	1
187	0	2	3	2	4	1	0	6	3
188	0	12	4	0	5	0	1	4	1
189	0	6	3	2	3	0	2	2	0
190	1	12	3	1	3	0	0	3	0
191	0	8	0	0	0	0	1	0	0
192	0	10	2	0	3	0	1	3	0
193	2	12	2	0	1	0	0	4	0
194	4	10	2	2	0	0	0	1	0
195	4	10	1	0	0	0	1	0	0
196	11	4	2	0	0	0	0	1	0
197	8	2	0	0	0	0	0	0	0
198	13	3	0	0	1	0	0	0	0
199	5	0	0	0	0	0	0	0	0
200	12	1	0	0	0	0	0	0	0
201	2	0	0	0	0	0	0	0	0
202	10	1	0	0	0	0	0	0	0
203	7	0	0	0	0	0	0	0	0
204	1	0	0	0	0	0	0	0	0
205	2	0	0	0	0	0	0	0	0
208	2	0	0	0	0	0	0	0	0

In [28]:
```
T.groupby('Poste').sum()
```

Out[28]:
```
<pandas.core.groupby.generic.DataFrameGroupBy object at 0x7fb
84e024cd0>
```

In [1]:
```
import pandas as pa
```

```
T=pa.read_csv('data/volcans.csv')
T.head()
```

Out[1]:

	id	nom	pays	region	lat	long	alt	t
0	0803-001	Abu	Japan	Honshu-Japan	34.500	131.600	571.0	Shield volcano
1	1505-096	Acamarachi	Chile	Chile-N	-23.300	-67.620	6046.0	Stratovolc
2	1402-08=	Acatenango	Guatemala	Guatemala	14.501	-90.876	3976.0	Stratovolc
3	0103-004	Acigol-Nevsehir	Turkey	Turkey	38.570	34.520	1689.0	Maar
4	1201-04-	Adams	United States	US-Washington	46.206	-121.490	3742.0	Stratovolc

In [2]:
```
H=T.query('alt >=0').copy()
M=H['alt'].max()
```

In [31]:
```
pip install plotly
```

```
Collecting plotly
  Downloading plotly-5.6.0-py2.py3-none-any.whl (27.7 MB)
     |████████████████████████████████| 27.7 MB 7.3 MB/s eta
0:00:01     |███████████                     | 8.9 MB 3.2 MB/s
eta 0:00:06     |████████████████████            | 18.6 MB 9.9
MB/s eta 0:00:01:00:01▒▒▒▒▒     | 24.1 MB 9.9 MB/s eta 0:00:0
1
Requirement already satisfied: six in /usr/lib/python3/dist-pa
ckages (from plotly) (1.16.0)
Collecting tenacity>=6.2.0
  Downloading tenacity-8.0.1-py3-none-any.whl (24 kB)
Installing collected packages: tenacity, plotly
Successfully installed plotly-5.6.0 tenacity-8.0.1
Note: you may need to restart the kernel to use updated packag
es.
```

In [3]:
```
import plotly.graph_objects as go
```

In [4]:
```
fig=go.Figure()

fig.add_scattergeo(
    mode='markers',
    lon = H['long'],
    lat=H['lat'],
    showlegend=True,
    name='Classique',
    hovertext = H['nom'] +'<br>' + H['alt'].astype(str) +
```

```
'm',
    marker = {
        'color' : H['alt'],
        'colorscale': 'reds',
        'symbol' : 'triangle-up',
        'line' : {'color':'black',
        'width':2},
        'size' : 1 + (30*H['alt'] / M).astype(int)}
)

fig.update_geos(
    showcoastlines = True,
    showcountries = True,
    countrycolor='white',
    landcolor ='#AAA',
    projection={
        'type' : 'natural earth'
    }
)

fig.update_layout(
    height=510,
    width=850,
)
```

In [ ]: