

Group Meeting

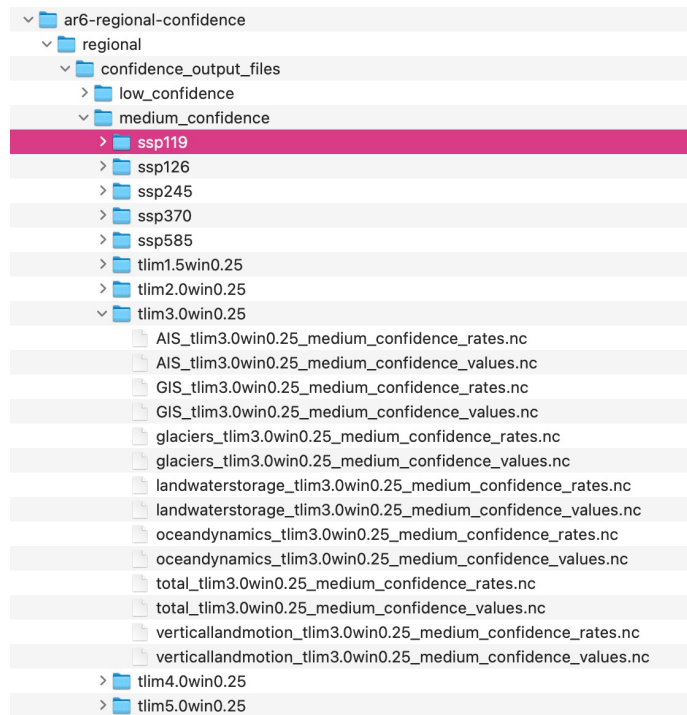
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Outline

- Chat Sea level
 - Introduction: Combine the ChatGPT + IPCC AR6 Sea Level Projections
 - Dataset
 - Demo
 - Issues
- Discussion

IPCC AR6 Sea Level Projections: Dataset

- Scenarios: ssp+tlm (n=10)
- Variables: n=7
- Output: values and rate (n=2)
- Quantiles: 107
- Location: 1030 cities + 65160
- Year: 2020,..., 2150 (n=14)
- <https://zenodo.org/records/6382554>



Chat Sea level: Dataset

- Scenarios: ssp (n=5)
- Variables: total (n=1)
- Output: values (n=1)
- Quantiles: 0.5 (n=1)
- Location: 1030 cities
- Year: 2020,..., 2150 (n=14)
- [Dataset link](#)

	scenarios	Location_id	Location_name	Latitude	Longitude	2020	2030	2040	2050	2060	2070
0	ssp119	1	BREST	48.38	-4.49	68.0	102.0	134.0	182.0	224.0	272.0
1	ssp119	2	SWINOUJSCIE	53.92	14.23	76.0	120.0	164.0	208.0	246.0	288.0
2	ssp119	3	SHEERNESS	51.45	0.74	79.0	120.0	160.0	211.0	259.0	313.0
3	ssp119	5	HOLYHEAD	53.31	-4.62	72.0	108.0	142.0	190.0	232.0	280.0
4	ssp119	7	CUXHAVEN_2	53.87	8.72	78.0	126.0	170.0	219.0	270.0	323.0
5	ssp119	8	WISMAR_2	53.9	11.46	80.0	125.0	170.0	216.0	258.0	304.0
6	ssp119	9	MAASSLUIS	51.92	4.25	73.0	114.0	154.0	203.0	250.0	302.0
7	ssp119	10	SAN_FRANCISCO	37.81	-122.47	42.0	81.0	118.0	160.0	195.0	250.0
8	ssp119	11	WARNEMUNDE_2	54.17	12.1	78.0	121.0	165.0	211.0	250.0	294.0
9	ssp119	12	NEW_YORK	40.7	-74.01	100.0	180.0	253.0	330.0	392.0	452.0
10	ssp119	13	TRAVEMUNDE	53.96	10.87	82.0	127.0	172.0	220.0	264.0	312.0
11	ssp119	14	HELSINKI	60.15	24.96	26.0	42.0	48.0	50.0	56.0	56.0
12	ssp119	15	LIVERPOOL_GEORGES_AND_PRINCES_PERS	53.4	-3.0	70.0	106.0	138.0	183.0	225.0	270.0
13	ssp119	16	LYOKKI	60.85	21.18	-16.0	-28.0	-51.0	-77.0	-98.0	-128.0
14	ssp119	17	LPYRTTI	60.6	21.23	-8.0	-17.0	-35.0	-56.0	-73.0	-98.0
15	ssp119	18	JUNGFRUSUND	59.95	22.37	15.0	22.0	21.0	16.0	16.0	7.0
16	ssp119	20	VLISSINGEN	51.44	3.6	70.0	108.0	144.0	191.0	236.0	286.0
17	ssp119	21	ABERDEEN_II	57.15	-2.08	70.0	102.0	130.0	168.0	206.0	242.0
18	ssp119	22	HOEK_VAN_HOLLAND	51.98	4.12	82.0	127.0	173.0	229.0	281.0	339.0
19	ssp119	23	DEN_HELDER	52.96	4.75	70.0	108.0	144.0	189.0	234.0	282.0
20	ssp119	24	DELFTZIJL	53.33	6.93	77.0	120.0	161.0	210.0	258.0	308.0
21	ssp119	25	HARLINGEN	53.18	5.41	70.0	108.0	144.0	190.0	234.0	282.0
22	ssp119	26	LIEPAJA	56.53	20.98	72.0	115.0	152.0	188.0	224.0	259.0
23	ssp119	27	UTO	59.78	21.37	13.0	18.0	15.0	8.0	6.0	-4.0
24	ssp119	28	RUSSARO	59.77	22.95	22.0	35.0	37.0	36.0	40.0	38.0
25	ssp119	29	SODERSKAR	60.12	25.42	30.0	50.0	59.0	64.0	74.0	76.0
26	ssp119	30	RONNSKAR	63.07	20.8	-51.0	-88.0	-135.0	-186.0	-232.0	-288.0

Demo

- Q1: What's the New York (id 12) sea level change under ssp 126 in 2080?
- Q2: When the New York (id 12) sea level change will increase 600mm under ssp245?
- Q3: Under which scenarios can we avoid sea level rising about 1000mm at New York(id 12) in 2100?
- Q4: What's the top 5 cities that sea level change mostly under ssp585 in 2100?

Demo: Q1

- Q1: What's the New York (id 12) sea level change under ssp 126 in 2080?



ChatIAMs Sea level change

A chatbot enhanced by [Sea level change](#) from [IPCC WGI Box TS.4 and section 9.6](#)

- Median projections of global and regional sea level rise, relative to a 1995-2014 baseline.



What's the New York (id 12) sea level change under ssp 126 in 2080?



The projected sea level change for New York (Location ID 12) under the scenario SSP1-2.6 (which holds warming below 2.0°C) in the year 2080 is 552 mm.

Demo: Q2

- Q2: When the New York (id 12) sea level change will increase 600mm under ssp245?



ChatIAMs Sea level change

A chatbot enhanced by [Sea level change](#) from [IPCC WGI Box TS.4 and section 9.6](#)

- Median projections of global and regional sea level rise, relative to a 1995-2014 baseline.



When the New York (id 12) sea level change will increase 600mm under ssp245?



Under the SSP2-4.5 scenario, the projected sea level change in New York (location id 12) is expected to reach or exceed 600mm by the year 2080.

Demo: Q3

- Q3: Under which scenarios can we avoid sea level rising about 1000mm at New York(id 12) in 2100?



ChatIAMS Sea level change

A chatbot enhanced by [Sea level change](#) from [IPCC WGI Box TS.4 and section 9.6](#)

- Median projections of global and regional sea level rise, relative to a 1995-2014 baseline.



Under which scenarios can we avoid sea level rising about 1000mm at New York(id 12) in 2100?



The sea level rise projections for New York (ID 12) in 2100 under different scenarios are as follows:

- SSP1-1.9: 595.0 mm
- SSP1-2.6: 667.0 mm
- SSP2-4.5: 814.0 mm
- SSP3-7.0: 930.0 mm
- SSP5-8.5: 1036.0 mm

To avoid a sea level rise of about 1000mm in New York by 2100, the following scenarios are suitable:

- SSP1-1.9
- SSP1-2.6
- SSP2-4.5
- SSP3-7.0

The SSP5-8.5 scenario projects a sea level rise above 1000mm, so it would not be suitable for avoiding the threshold.

Demo: Q4

- Q4: What's the top 5 cities that sea level change mostly under ssp585 in 2100?



ChatIAMS Sea level change

A chatbot enhanced by [Sea level change](#) from [IPCC WGI Box TS.4 and section 9.6](#)

- Median projections of global and regional sea level rise, relative to a 1995-2014 baseline.



What's the top 5 cities that sea level change mostly under ssp585 in 2100?



The top 5 cities most affected by sea level change under the SSP5-8.5 scenario in 2100 are:

1. **Toba** - 2611 mm
2. **Tribeni** - 2231 mm
3. **Fort Phrachula Chomklao** - 1893 mm
4. **Hanasaki II** - 1692 mm
5. **Kamaisi II** - 1656 mm

These cities are projected to experience the highest increases in sea level under this high-emission scenario by the end of the century.

Issues

- City Name Recognition
- Web History Chat
- General Performance

	Location_name	Location_id	Latitude	Longitude
0	BREST	1	48.38	-4.49
1	SWINOUJSCIE	2	53.92	14.23
2	SHEERNESS	3	51.45	0.74
3	HOLYHEAD	5	53.31	-4.62
4	CUXHAVEN_2	7	53.87	8.72
5	WISMAR_2	8	53.9	11.46
6	MAASSLUIS	9	51.92	4.25
7	SAN_FRANCISCO	10	37.81	-122.47
8	WARNEMUNDE_2	11	54.17	12.1
9	NEW_YORK	12	40.7	-74.01
10	TRAVEMUNDE	13	53.96	10.87
11	HELSINKI	14	60.15	24.96
12	LIVERPOOL_GEORGES_AND_PRINCES_PIER	15	53.4	-3.0
13	LYOKKI	16	60.85	21.18
14	LYPYRTTI	17	60.6	21.23
15	JUNGFRUSUND	18	59.95	22.37
16	VLISSINGEN	20	51.44	3.6
17	ABERDEEN_II	21	57.15	-2.08
18	HOEK_VAN_HOLLAND	22	51.98	4.12
19	DEN_HELDER	23	52.96	4.75
20	DELFIJL	24	53.33	6.93
21	HARLINGEN	25	53.18	5.41
22	LIEPAJA	26	56.53	20.98
23	UTO	27	59.78	21.37
24	RUSSARO	28	59.77	22.95
25	SODERSKAR	29	60.12	25.42
26	RONNSKAR	30	63.07	20.8
27	NEDRE_SODERTALJE	31	59.2	17.62
28	IJMUIDEN	32	52.46	4.55
29	OSCARSBORG	33	59.68	10.6
30	TRONDHEIM	34	63.43	10.43

Discussion