

IPCC 1.5度特别报告主要结论 /Main findings of IPCC SR on 1.5 degrees warming

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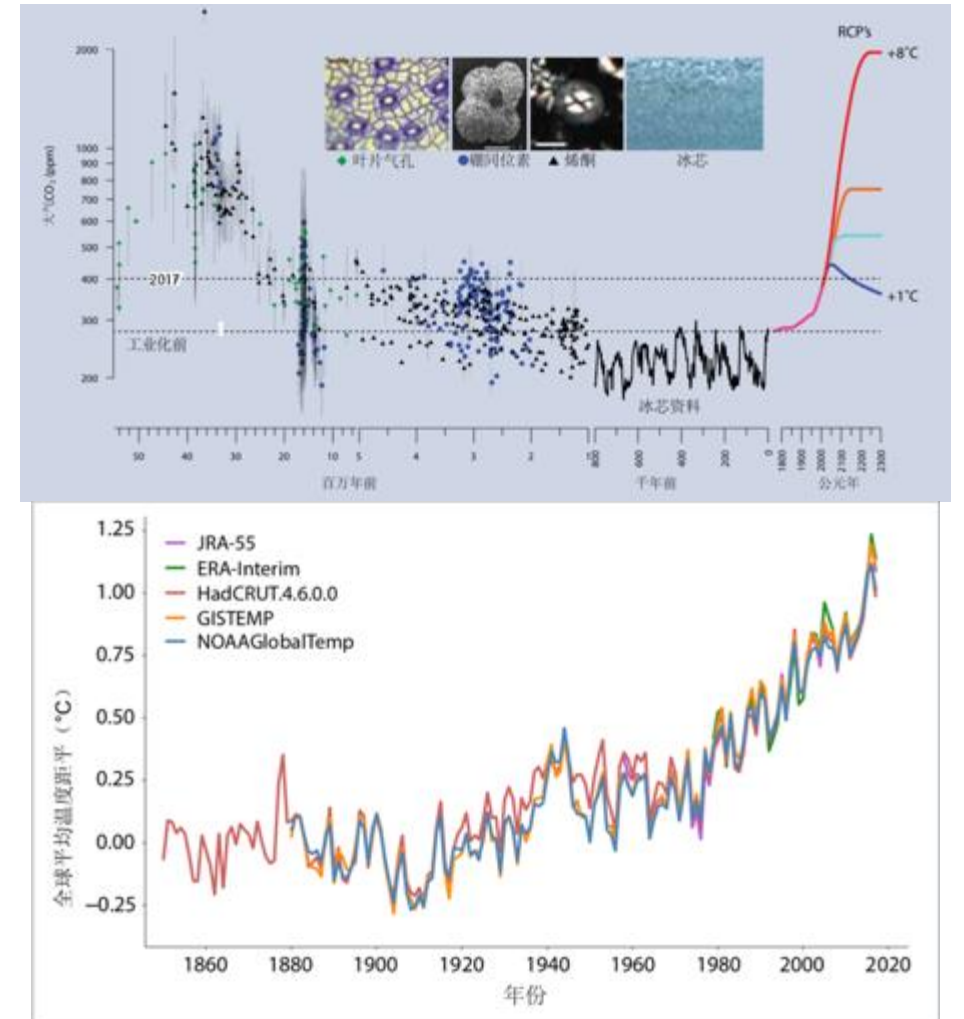
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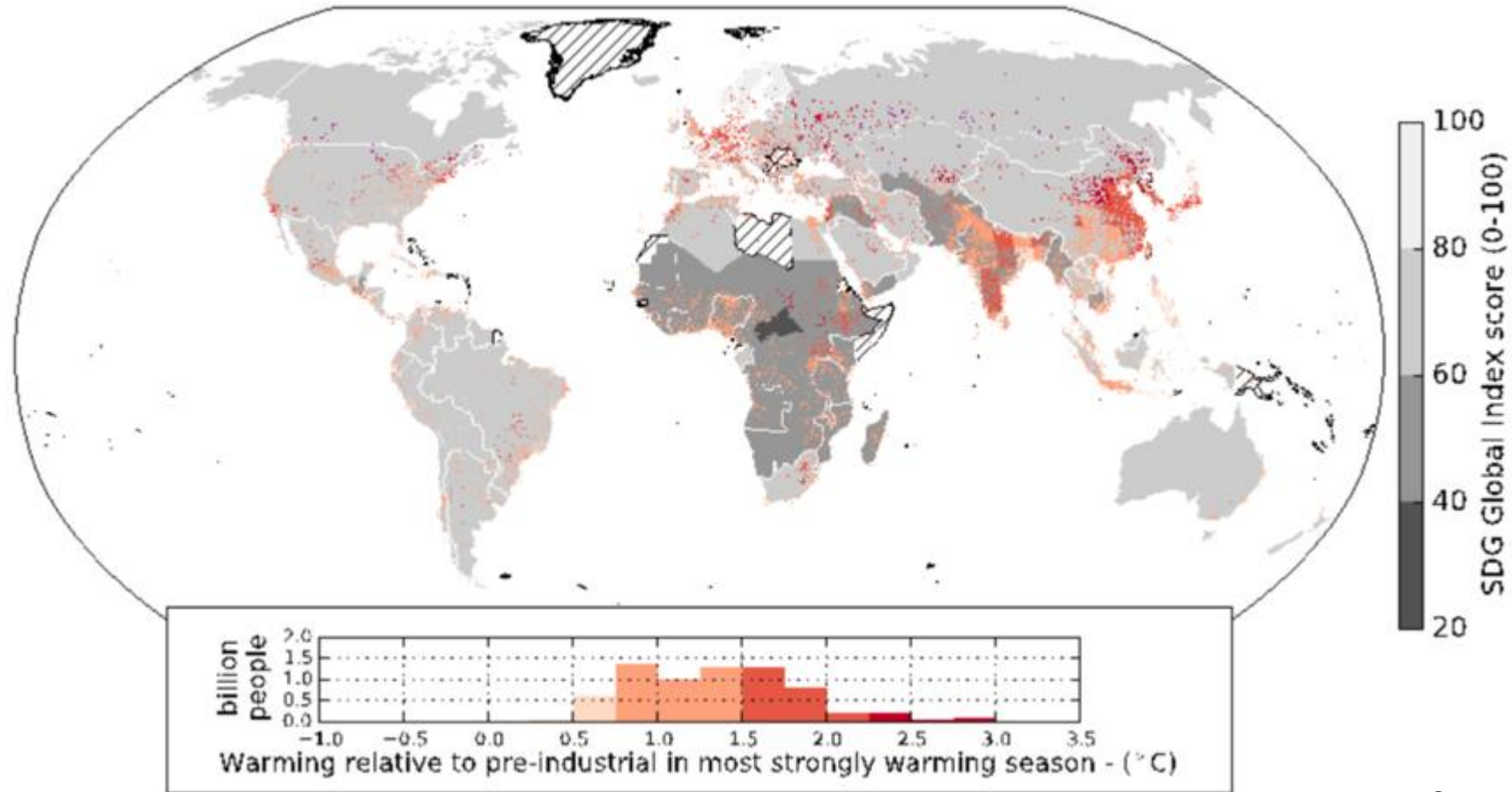
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Where we are now?

- 自工业革命以来，人类活动已经导致了约1度的温升； Since industrial time, human activity has caused approximately 1.0 C of global warming;
- 气候变化对自然生态和人类社会系统的影响已经显现； Already seeing consequences of global warming for natural ecosystem and human society;
- 按现有变暖速度，全球地表平均温升将在2030-2052年间达到1.5度； At current warming rate, it would reach 1.5 C around 2030 and 2052;
- 历史排放； Past emission alone will not commit to the increase of 1.5 C;



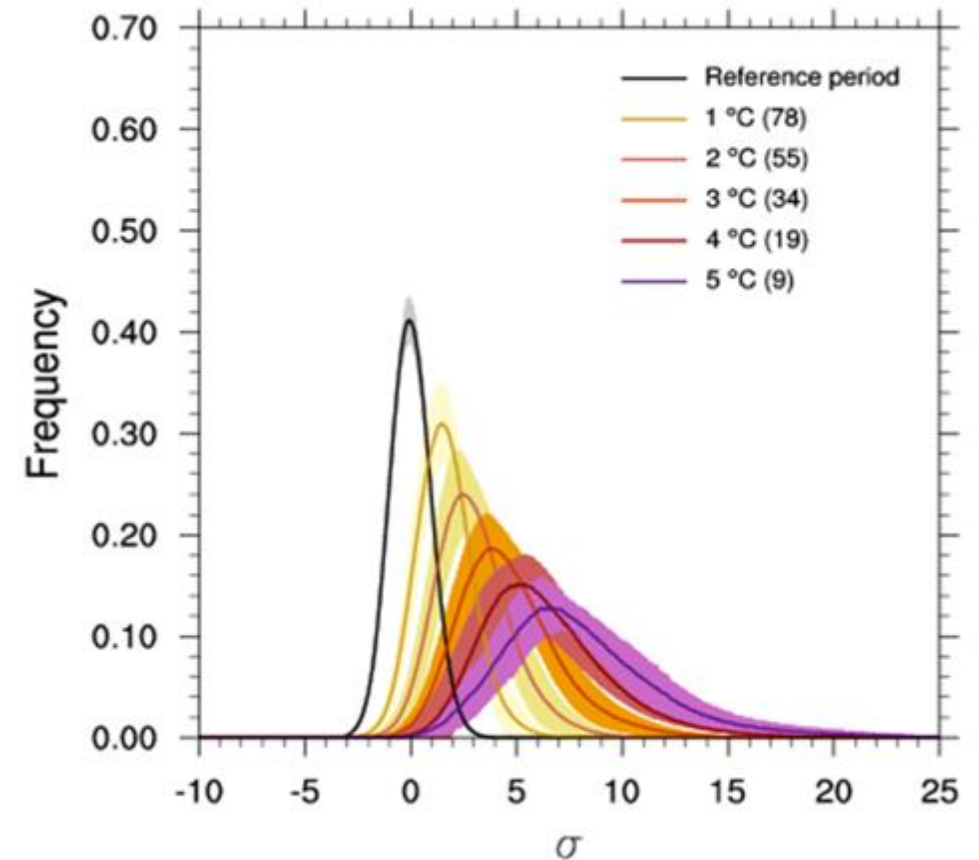
1.5度已经在发生/1.5 C is already happening

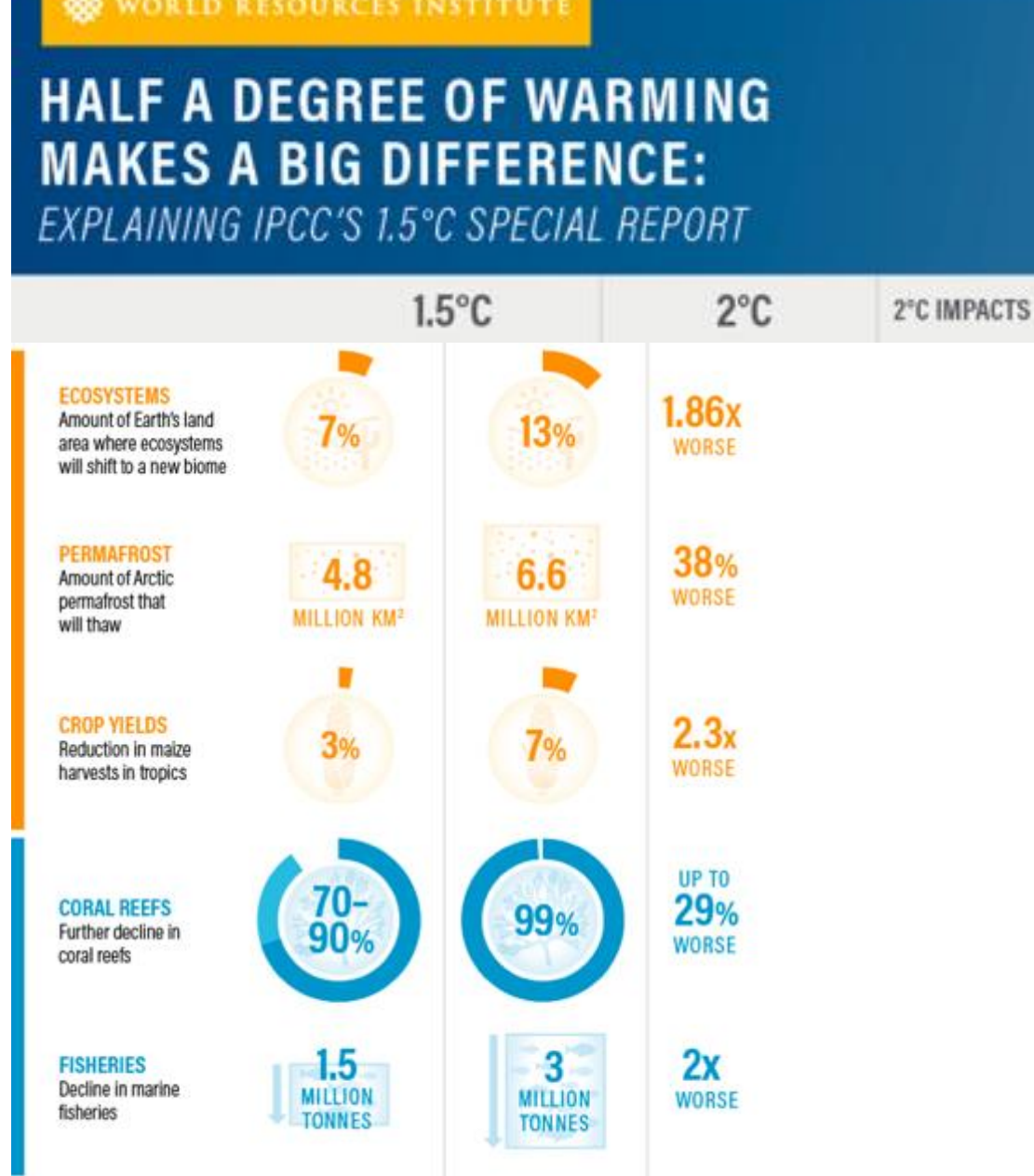


Source: IPCC 1.5 SR

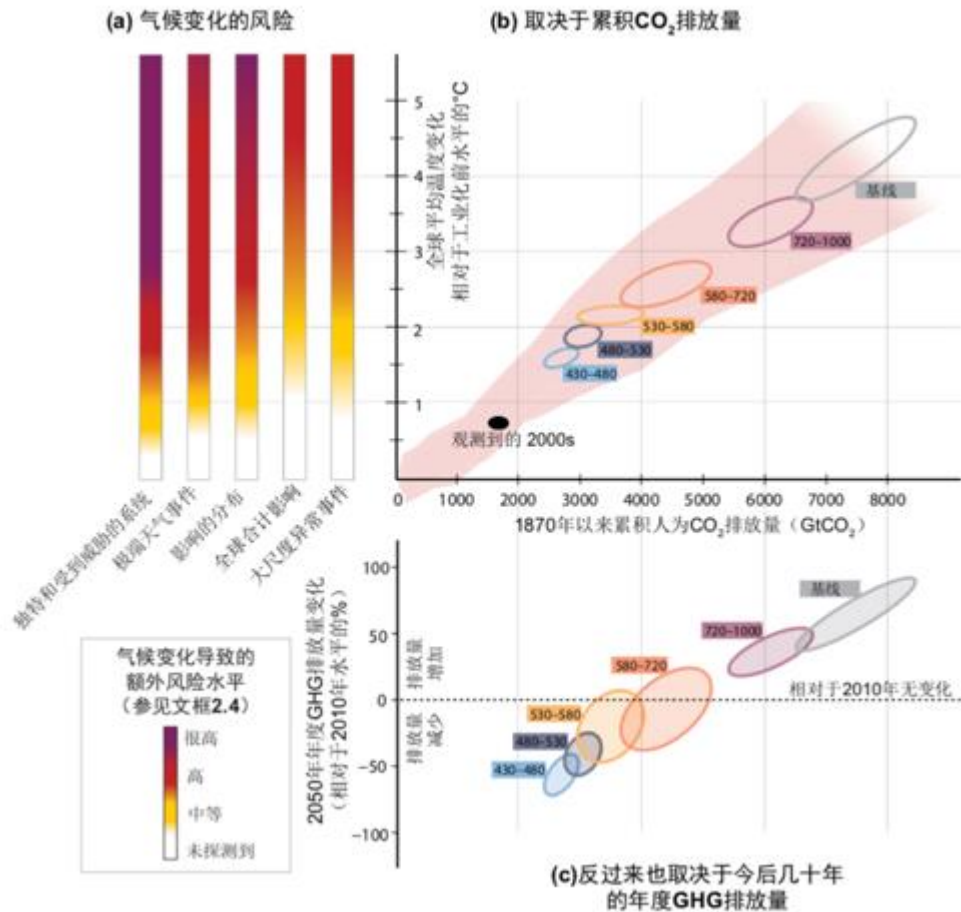
1.5度变暖的影响显著低于2度/Impact of global warming at 1.5C are significantly lower than at 2C

- 更少的极端天气事件，包括极端热浪与极端降雨/Less extreme weathers including extreme heat wave and rainfalls;
- 海平面上升幅度减少10cm，北极冰盖的消失在1.5度到2度之间将不可逆转/Sea level rise will be about 0.1m lower, irreversible Greenland sea ice loss could be triggered between 1.5C and 2C.
- 局地物种消失和灭绝的风险更加低/Risks of local species losses and, consequently, risks of extinction are much less ;
- 暴露于水资源短缺、气候风险及贫困的全球人口均将大幅下降/Global population exposed to water shortage will be less (50% less) and fewer exposed to climate risk and susceptible poverty.

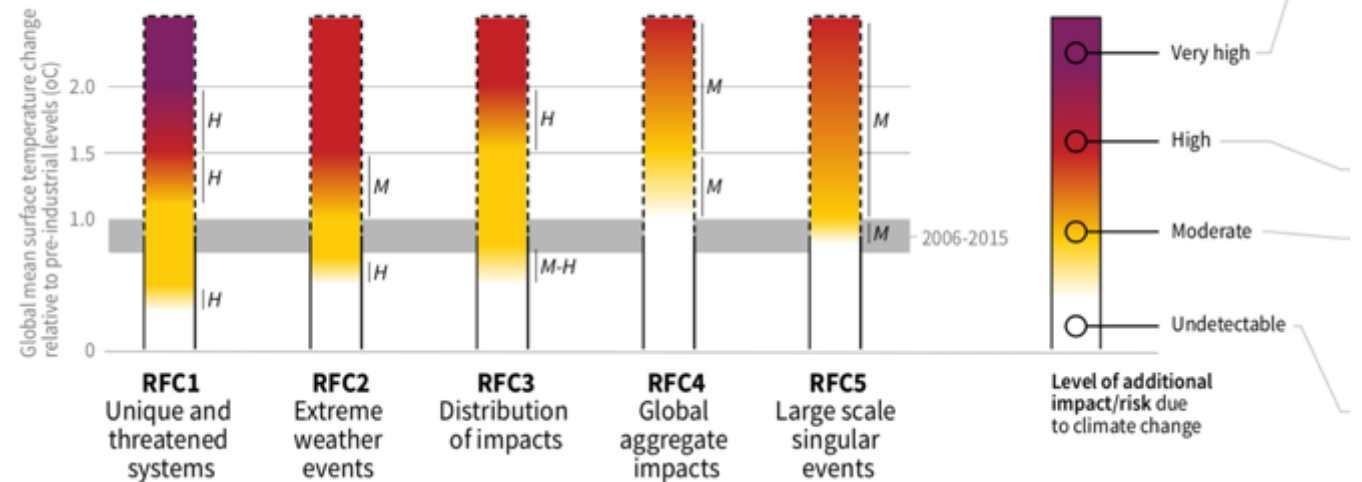




五个关切理由/Five reasons for concern



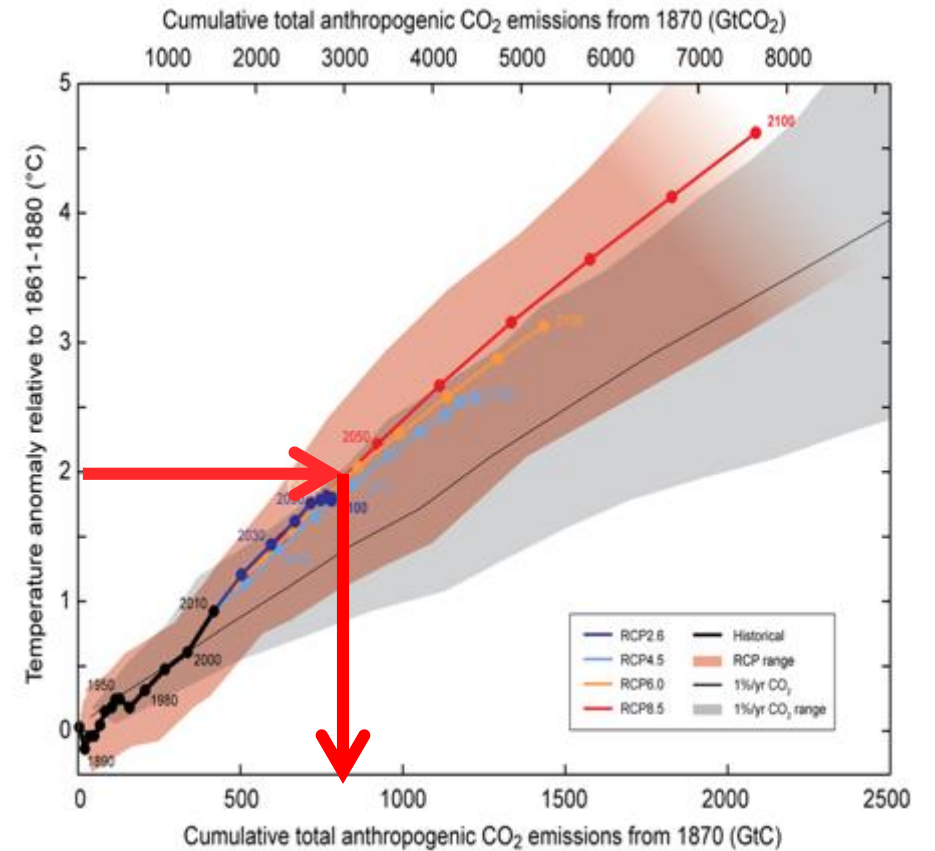
Impacts and risks associated with the Reasons for Concern (RFCs)



RFC1	High-very high	2.6度	1.5-2度
RFC2	Moderate-High	1-1.5度	1-1.5度
RFC3	Moderate-High	1.6-2.6度	1.5-2度
RFC4	Moderate-High	3度	1.5-2.5度
RFC5	Moderate-High	1.9-4度	1-2.5度

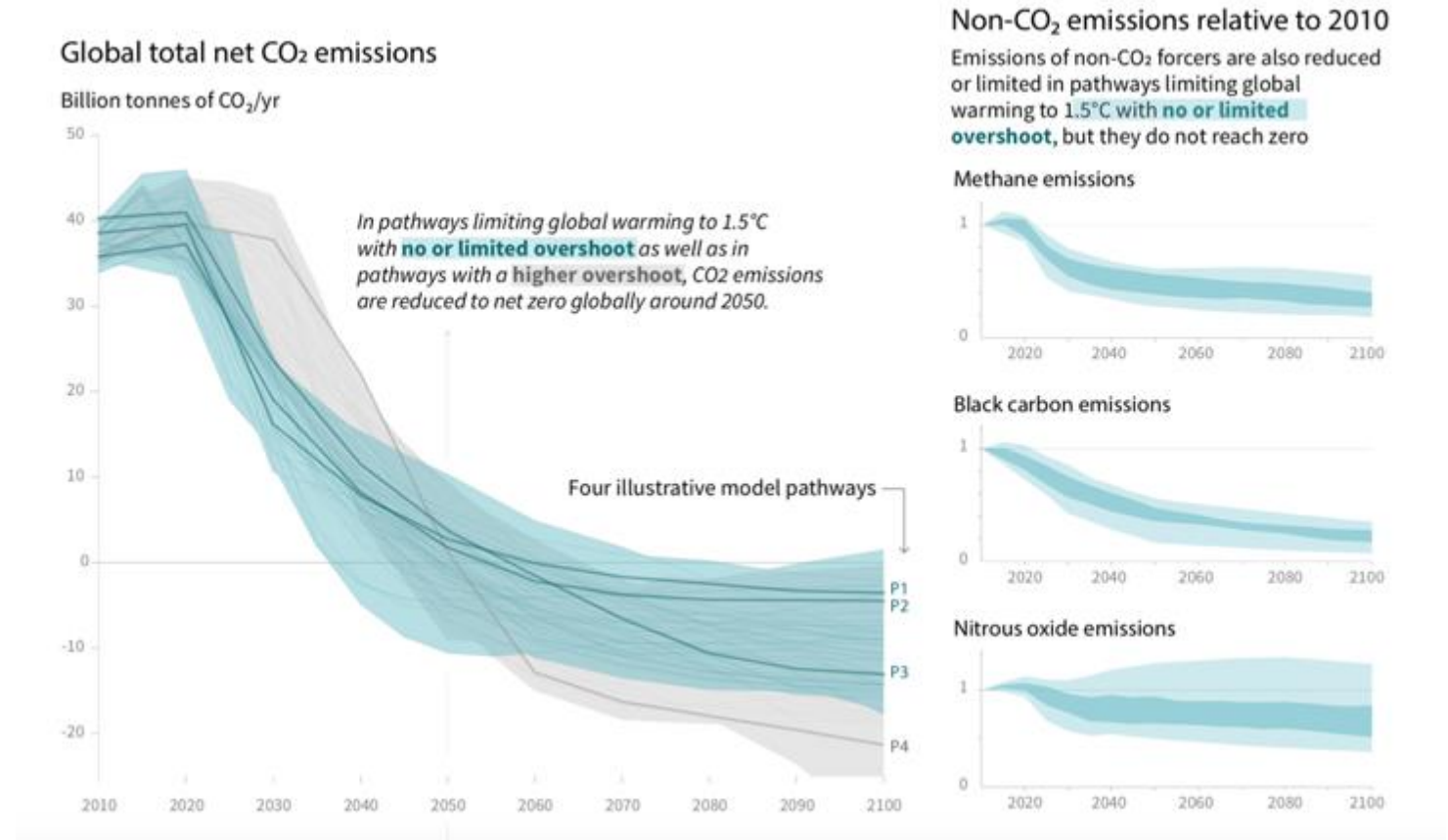
剩余的碳预算/Remaining Carbon budget

- 限制全球温升需要全球排放不超过总的碳预算/Limiting global warming requires staying within a total carbon budget ;
- 2017年底自工业革命以来的全球人为碳排放已超过2200Gt/By the end of 2017, anthropogenic CO₂ emissions since the preindustrial period are estimated to have reduced the total carbon budget for 1.5°C by approximately 2200 ± 320 GtCO₂ ;
- 1.5度目标下的剩余碳预算为420Gt-580Gt/The remaining carbon budget of 580 GtCO₂ for a 50% probability of limiting warming to 1.5°C, and 420 GtCO₂ for a 66% probability ;
- 目前全球年排放约为42Gt/The associated remaining budget is being depleted by current emissions of 42 ± 3 GtCO₂ per year ;



1.5度下的全球排放路径/Global emission pathways to 1.5C

- 1.5度目标下2030年碳排放比2010年降低45%，2度降低20%/CO₂ emission fall by 45% by 2030 (from 2010 level), compared to 20% for 2C;
- 1.5度目标下2050年实现零排放，2度目标为2075年/CO₂ emission need to be net zero around 2050, compared to 2075 for 2C;

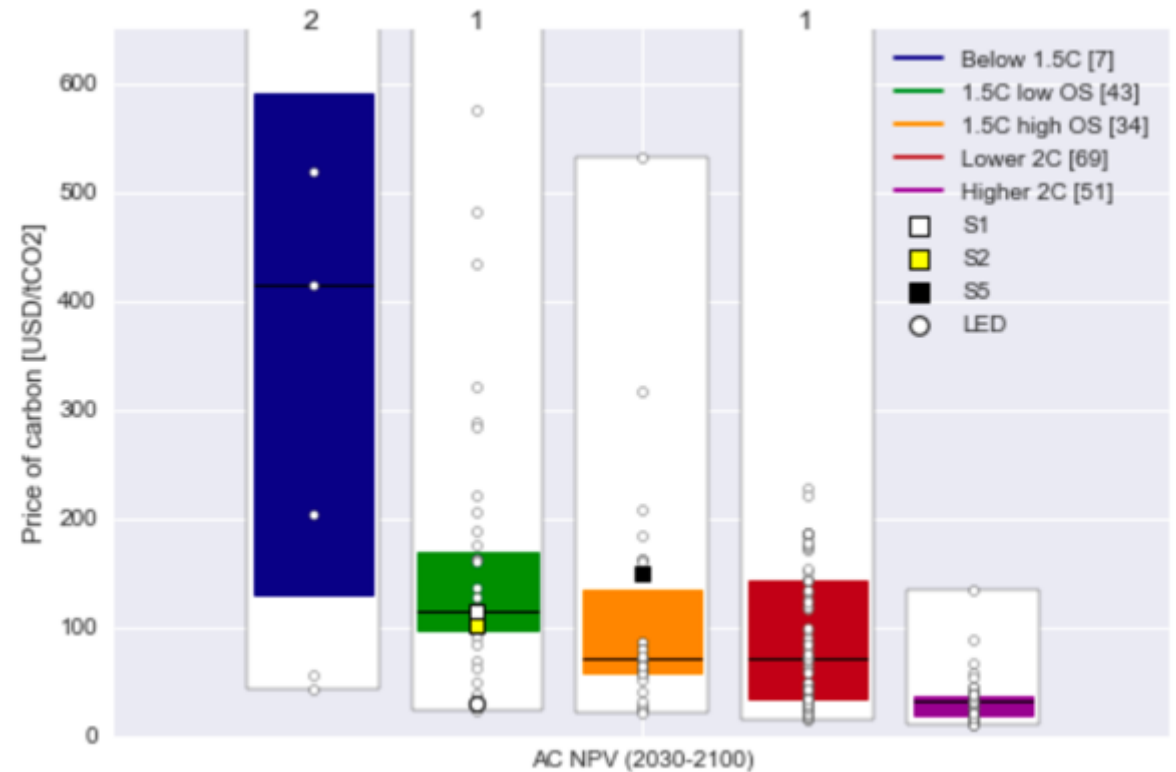


1.5度下的全球排放路径/Global emission pathways to 1.5C

Global indicators	P1	P2	P3	P4
Pathway classification	No or limited overshoot	No or limited overshoot	No or limited overshoot	Higher overshoot
CO ₂ emission change in 2030 (% rel to 2010)	-58	-47	-41	4
↳ in 2050 (% rel to 2010)	-93	-95	-91	-97
Kyoto-GHG emissions* in 2030 (% rel to 2010)	-50	-49	-35	-2
↳ in 2050 (% rel to 2010)	-82	-89	-78	-80
Final energy demand** in 2030 (% rel to 2010)	-15	-5	17	39
↳ in 2050 (% rel to 2010)	-32	2	21	44
Renewable share in electricity in 2030 (%)	60	58	48	25
↳ in 2050 (%)	77	81	63	70
Primary energy from coal in 2030 (% rel to 2010)	-78	-61	-75	-59
↳ in 2050 (% rel to 2010)	-97	-77	-73	-97
from oil in 2030 (% rel to 2010)	-37	-13	-3	86
↳ in 2050 (% rel to 2010)	-87	-50	-81	-32
from gas in 2030 (% rel to 2010)	-25	-20	33	37
↳ in 2050 (% rel to 2010)	-74	-53	21	-48
from nuclear in 2030 (% rel to 2010)	59	83	98	106
↳ in 2050 (% rel to 2010)	150	98	501	468
from biomass in 2030 (% rel to 2010)	-11	0	36	-1
↳ in 2050 (% rel to 2010)	-16	49	121	418
from non-biomass renewables in 2030 (% rel to 2010)	430	470	315	110
↳ in 2050 (% rel to 2010)	833	1327	878	1137
Cumulative CCS until 2100 (GtCO ₂)	0	348	687	1218
↳ of which BECCS (GtCO ₂)	0	151	414	1191

1.5度路径的成本与投资/Cost and investment of 1.5C pathways

- 1.5度路径的边际减排成本约比2度路径高3-4倍
/The discounted marginal abatement costs of 1.5C pathways are roughly 3-4 times higher than in pathways limiting global warming to below 2°C.
- 1.5度路径下能源相关投资约比2度高12%/Total energy-related investments increase by about 12% in 1.5°C pathways relative to 2°C pathways.
- 1.5度路径下的低碳投资2050年要比2015年增长6倍/ Annual investments in low-carbon energy technologies and energy efficiency are upscaled by roughly a factor of six by 2050 compared to 2015



1.5度目标与可持续发展目标的关系/1.5 degree and SDGs

Indicative linkages between mitigation options and sustainable development using SDGs (The linkages do not show costs and benefits)

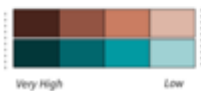
Mitigation options deployed in each sector can be associated with potential positive effects (synergies) or negative effects (trade-offs) with the Sustainable Development Goals (SDGs). The degree to which this potential is realized will depend on the selected portfolio of mitigation options, mitigation policy design, and local circumstances and context. Particularly in the energy-demand sector, the potential for synergies is larger than for trade-offs. The bars group individually assessed options by level of confidence and take into account the relative strength of the assessed mitigation-SDG connections.

Length shows strength of connection

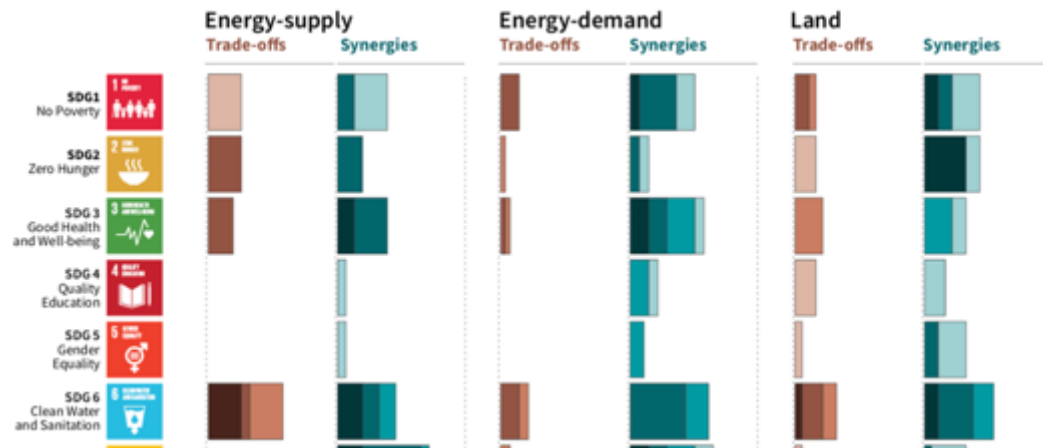


The overall size of the coloured bars depict the relative for synergies and trade-offs between the sectoral mitigation options and the SDGs.

Shades show level of confidence



The shades depict the level of confidence of the assessed potential for Trade-offs/Synergies.



Possible synergies and trade-offs of climate change mitigation with the SDGs

Mitigation options deployed in each sector can be associated with potential synergies or trade-offs with the Sustainable Development Goals (SDGs). The degree to which this potential is realized will depend on the selected portfolio of mitigation options, mitigation policy design, and local circumstances and context. Particularly in the energy-demand sector, the potential for synergies is larger than for trade-offs. The bars group individually assessed options by level of confidence and take into account the relative strength of the assessed mitigation-SDG connections.

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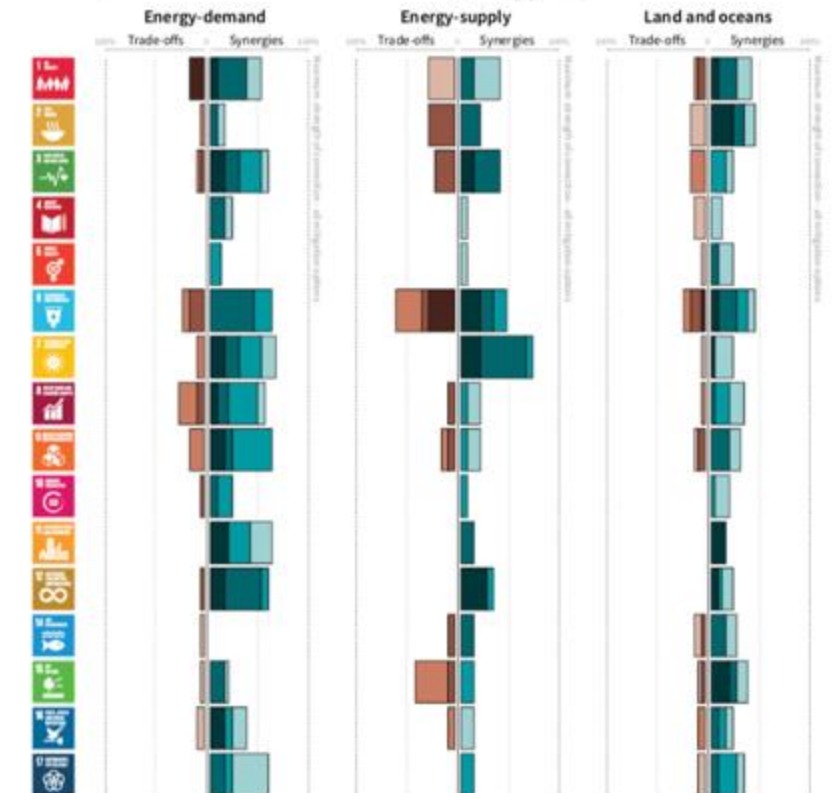


The overall size of the coloured bars (from 0 to 100%) depict the relative potential for synergies and trade-offs between the sectoral mitigation options and the SDGs.

Shades show level of confidence



The shades depict the level of confidence of the assessed potential.



结论/Conclusion

- 全球变暖已达1度，并且碳预算在快速消耗/An average of 1 °C global warming already happened, we are consuming remaining carbon budget rapidly;
- 1.5度温升的影响显著低于2度，但减排成本和投资也显著高于2度并有较大不确定性/Impact of global warming at 1.5 °C are significantly lower than at 2 °C, while mitigation cost and investment is also much higher and full of uncertainty;
- 1.5度的成本效益分析仍存在知识差距，支持1.5度作为新全球目标政治共识的基础并不强/Knowledge gaps remain for the economy wide costs and benefits of mitigation in line with 1.5°C; The basis for political consensus is not strong enough to move towards 1.5 °C as global goals;