

# Resources and References

## Intro to Climpact: Generating Climate Indices to Support Climate Services

1 January, 2021

Complete list of the indices included in Climpact <https://climpact-sci.org/indices/>.

Climpact User Guide <https://climpact-sci.org/assets/climpact2-user-guide.pdf>

ClimPACT2 Quality Control functionality, by Nick Herold, UNSW, Sydney,  
<https://youtu.be/guslge2bTNk>

## Module 1: Introduction

- Full definitions of the 27 core indices  
[http://etccdi.pacificclimate.org/list\\_27\\_indices.shtml](http://etccdi.pacificclimate.org/list_27_indices.shtml)
- Full definitions of the ~60 plus Climpact indices <https://climpact-sci.org/indices/>
- More information about the formation of the ET-SCI:  
<https://climpact-sci.org/about/project/>
- Observations: Surface and Atmospheric Climate Change, from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change  
<https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter3-1.pdf>

### Climdex

- <https://www.pacificclimate.org/>
- <https://www.climdex.org>
- <https://github.com/ECCC-CDAS/RClimDex>
- <https://acmad.net/rcc/procedure/RClimDexUserManual.pdf>

## Module 2: Key Concepts for Analysis of Climate Extremes

- Information on trend analysis using the R package:  
[https://www.researchgate.net/publication/275640899\\_Trend\\_Analysis\\_Using\\_R](https://www.researchgate.net/publication/275640899_Trend_Analysis_Using_R)
- Representative Concentration Pathways (RCPs)  
<https://climateinformation.org/data-variables/what-do-different-rcps-mean/>
- Introduction to Statistics for Climatology  
<https://www.meted.ucar.edu/afwa/climo/stats/index.htm>  
[https://www.meted.ucar.edu/afwa/climo/stats/quick\\_guide.pdf](https://www.meted.ucar.edu/afwa/climo/stats/quick_guide.pdf)

## Module 3: Select Complete & Continuous Data

- Global Historical Climatology Network (GHCNd) (publicly available databases of instrumental observations)  
<https://www.ncei.noaa.gov/products/land-based-station/global-historical-climatology-network-daily>.

- WMO Standing Committee on Climate Services (SC-CLI)  
<https://community.wmo.int/activity-areas/sercom/sc-cli>
- WMO Guide to Climatological Practices  
[https://library.wmo.int/doc\\_num.php?explnum\\_id=5541](https://library.wmo.int/doc_num.php?explnum_id=5541)

Sources for remote sensing or numerical or statistical climate models

- Climate Prediction Center (CPC)  
[https://www.cpc.ncep.noaa.gov/products/monitoring\\_and\\_data](https://www.cpc.ncep.noaa.gov/products/monitoring_and_data)
- CHIRPS: Rainfall Estimates from Rain Gauge and Satellite Observations  
<https://www.chc.ucsb.edu/data/chirps>
- ERA5 (Climate reanalyses) <https://climate.copernicus.eu/climate-reanalysis>
- Global Observing System  
<https://public.wmo.int/en/programmes/global-observing-system>

Module 4: Load Data And Run Quality Control

- WMO Guide to Climatological Practice  
[https://library.wmo.int/doc\\_num.php?explnum\\_id=5541](https://library.wmo.int/doc_num.php?explnum_id=5541)

Potential resources for historical weather event data:

- Official climate and weather records from the NMHS or local meteorological offices
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- Extreme event records (In some locations, there are specific records of extreme occurrences, e.g. days with flooding or heat wave)
- Media archives (e.g., newspaper articles, web pages)
- Insurance reports (May require special request to companies, sometimes available in the form of indemnity tables/reports)
- The International Disaster Database <https://www.emdat.be/> - (compiled from various sources, including UN agencies, non-governmental organisations, insurance companies, research institutes and press agencies)
- Disaster Inventory Site (in Spanish) <https://www.desinventar.org/> - (based on newspaper disaster records)

Recommended for homogeneity testing and homogenization:

- Climatol <https://climatol.eu/>,  
<https://cran.r-project.org/web/packages/climatol/index.html>
- RHtest <https://github.com/ECCC-CDAS/RHtests>

WMO resources

- Climate Data Homogenization  
<https://community.wmo.int/climate-data-homogenization>
- Guidelines on Homogenization,  
[https://library.wmo.int/doc\\_num.php?explnum\\_id=10352](https://library.wmo.int/doc_num.php?explnum_id=10352)

- WMO Guidelines on the Calculation of Climate Normals  
[https://library.wmo.int/doc\\_num.php?explnum\\_id=4166](https://library.wmo.int/doc_num.php?explnum_id=4166)
- Climate Data Homogenization  
<http://etccdi.pacificclimate.org/homogenization.shtml>
- WMO Standing Committee on Climate Services (SC-CLI)  
<https://community.wmo.int/activity-areas/sercom/sc-cli>

## Module 5: Calculate Climate Indices

- Climate Data and Monitoring WCDMP-No. 72 “Guidelines on Analysis of extremes in a changing climate in support of informed decisions for adaptation”:  
[https://www.ecad.eu/documents/WCDMP\\_72\\_TD\\_1500\\_en\\_1.pdf](https://www.ecad.eu/documents/WCDMP_72_TD_1500_en_1.pdf)
- Standardized Precipitation Index User Guide  
<https://public.wmo.int/en/resources/library/standardized-precipitation-index-user-guide>

### Module 6: Analyze Trends

- Resources for creating plots with Excel: Present your data in a scatter chart or a line chart  
<https://support.microsoft.com/en-us/topic/present-your-data-in-a-scatter-chart-or-a-line-chart-4570a80f-599a-4d6b-a155-104a9018b86e>
- How To Make A Line Graph In Excel-EASY Tutorial  
<https://www.youtube.com/watch?v=3PwVWX28dEE>
- What are El Niño and La Niña?  
<https://www.unocha.org/themes/el-ni%C3%B1o/el-ni%C3%B1o-and-la-ni%C3%B1a>
- The Insignificance of Significance Testing  
[https://journals.ametsoc.org/view/journals/bams/82/5/1520-0477\\_2001\\_082\\_0981\\_caatio\\_2\\_3\\_co\\_2.xml](https://journals.ametsoc.org/view/journals/bams/82/5/1520-0477_2001_082_0981_caatio_2_3_co_2.xml)
- Significance Tests in Climate Science  
<https://journals.ametsoc.org/view/journals/clim/23/22/2010jcli3746.1.xml>
- Statistical Methods in the Atmospheric Sciences, Volume 100, 3rd Edition, Author: Daniel Wilks, Hardcover ISBN: 9780123850225, eBook ISBN: 9780123850232, Imprint: Academic Press. Published Date: 20th May 2011  
<https://www.elsevier.com/books/statistical-methods-in-the-atmospheric-sciences/wilks/978-0-12-385022-5>
- Jones, P. D. and M. Hulme, 1996: Calculating regional climatic time series for temperature and precipitation: Methods and illustrations. International Journal of Climatology, 16, 361-377.  
[https://doi.org/10.1002/\(SICI\)1097-0088\(199604\)16:4%3C361::AID-JOC53%3E3.O.CO;2-F](https://doi.org/10.1002/(SICI)1097-0088(199604)16:4%3C361::AID-JOC53%3E3.O.CO;2-F)

## Module 7: Calculate Correlations With Sectoral Data

- Spurious correlations <https://www.tylervigen.com/spurious-correlations>

- Appendix B: Input data format in Clim pact User Guide:  
[https://github.com/ARCCSS-extremes/clim pact/blob/master/www/user\\_guide/Clim pact\\_user\\_guide.md#appendixb](https://github.com/ARCCSS-extremes/clim pact/blob/master/www/user_guide/Clim pact_user_guide.md#appendixb)
- Data Analysis: Detrending data series to avoid false correlations  
[https://www.youtube.com/watch?v=2-nMsoE\\_in0](https://www.youtube.com/watch?v=2-nMsoE_in0)
- Bringing physical reasoning into statistical practice in climate-change science  
<https://link.springer.com/content/pdf/10.1007/s10584-021-03226-6.pdf>

## Module 8: Communicate Indices & Trends

- “WMO, Guidelines On Analysis Of Extremes In A Changing Climate In Support Of Informed Decisions For Adaptation”  
[https://www.ecad.eu/documents/WCDMP\\_72\\_TD\\_1500\\_en\\_1.pdf](https://www.ecad.eu/documents/WCDMP_72_TD_1500_en_1.pdf)
- IPCC AR4  
<https://www.ipcc.ch/report/ar4/wg1/observations-atmospheric-surface-and-climate-change>
- State of Climate in 2021: Extreme events and major impacts  
<https://public.wmo.int/en/media/press-release/state-of-climate-2021-extreme-events-and-major-impacts>
- State of the Climate in Africa 2020  
[https://library.wmo.int/doc\\_num.php?explnum\\_id=10421](https://library.wmo.int/doc_num.php?explnum_id=10421)

## National Communications

- South Africa’s Third National Communication (TNC)  
[https://unfccc.int/sites/default/files/resource/South%20African%20TNC%20Report%20to%20the%20UNFCCC\\_31%20Aug.pdf](https://unfccc.int/sites/default/files/resource/South%20African%20TNC%20Report%20to%20the%20UNFCCC_31%20Aug.pdf) 2012
- India: Second National Communication to the United Nations Framework Convention on Climate Change  
<https://unfccc.int/sites/default/files/resource/indnc2.pdf>
- The National Communications Process, National Communications Support Programme Resource Kit, National Communications Support Programme (NCSP) <https://www.uncclern.org/wp-content/uploads/library/undp24.pdf>
- UNFCCC Resource Guide Module 1: The Process Of National Communications From Non-Annex I Parties For Preparing The National Communications Of Non-Annex I Parties  
[https://unfccc.int/resource/docs/publications/09\\_resource\\_guide1.pdf](https://unfccc.int/resource/docs/publications/09_resource_guide1.pdf)
- UNFCCC secretariat (UN Climate Change) <https://unfccc.int/>
- The National Communications Process, National Communications Support Programme Resource Kit, National Communications Support Programme (NCSP) <https://www.uncclern.org/wp-content/uploads/library/undp24.pdf>
- UNFCCC Resource Guide Module 1: The Process Of National Communications From Non-Annex I Parties For Preparing The National Communications Of Non-Annex I Parties  
[https://unfccc.int/resource/docs/publications/09\\_resource\\_guide1.pdf](https://unfccc.int/resource/docs/publications/09_resource_guide1.pdf)

- UNFCCC secretariat (UN Climate Change) <https://unfccc.int/>

#### Nationally determined contributions (NDCs)

- Description of the NDCs provided by the UNFCCC:  
<https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs>
- UNFCCC NDC Registry  
<https://www4.unfccc.int/sites/ndcstaging/Pages/Home.aspx>

#### National Adaptation Plans (NAPs)

- Mastering National Adaptation Plans: from Start to Finish (3 hour, self-paced, online course) <https://unccelearn.org/course/view.php?id=141&page=overview#>
- Integrating Climate Risk Information into NAPs (6 hour, self-paced, online course)  
<https://www.unccelearn.org/courses/integrating-climate-risk-information-into-naps/>
- NAPs Repository  
<https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx>
- Example NAP: Saint Lucia's National Adaptation Plan (NAP) 2018–2028  
<https://www4.unfccc.int/sites/NAPC/Documents/Parties/SLU-NAP-May-2018.pdf>

#### Action Plans

- West Bengal, India, State Action Plan on Climate Change 2017–2020  
[http://www.environmentwb.gov.in/pdf/WBSAPCC\\_2017\\_20.pdf](http://www.environmentwb.gov.in/pdf/WBSAPCC_2017_20.pdf)
- National Climate Change Adaptation Strategy Republic of South Africa 13 November 2019  
[https://www.dffe.gov.za/sites/default/files/docs/nationalclimatechange\\_adaptation\\_strategy\\_ue10november2019.pdf](https://www.dffe.gov.za/sites/default/files/docs/nationalclimatechange_adaptation_strategy_ue10november2019.pdf)
- Africa Climate Business Plan, World Bank Group, Africa Region/June 2020  
<http://www.indiaenvironmentportal.org.in/files/file/The-Next-Generation-Africa-Climate-Business-Plan.pdf>
- World Bank Group Climate Change Action Plan 2016–2020  
<https://openknowledge.worldbank.org/bitstream/handle/10986/24451/K8860.pdf>
- City of Flagstaff, Arizona, US, Climate Action & Adaptation Plan, Nov 2018  
[https://www.flagstaff.az.gov/DocumentCenter/View/59413/Flagstaff-Climate-Action-and-Adaptation-Plan\\_Nov-2018\\_Introduction](https://www.flagstaff.az.gov/DocumentCenter/View/59413/Flagstaff-Climate-Action-and-Adaptation-Plan_Nov-2018_Introduction)
- List of Minimum Actions for Veracruz Facing Climate Change, Veracruz, Mexico (Spanish)  
[https://www.uv.mx/peccuv/files/2019/07/Veracruz-ante-el-CC\\_Propuestas-minimas-2019-2024.pdf](https://www.uv.mx/peccuv/files/2019/07/Veracruz-ante-el-CC_Propuestas-minimas-2019-2024.pdf)
- The University of Washington Climate Impacts Group Adaptation Guidebook -  
<https://cig.uw.edu/resources/special-reports/adaptation-guidebook/>
- The U.S. Climate Resilience Toolkit's "Steps to Resilience"  
<https://toolkit.climate.gov/#steps>

- The Sonoran Institute Resilient Communities Starter Kit  
<https://sonoraninstitute.org/resource/resilient-communities-starter-kit/>
- Planning for Hazards <https://planningforhazards.com/climate-plan>

## Project Proposals

- Annex II. Country Case Studies Version 8 September 2021 Developing the Climate Science Basis for Climate Action  
[https://library.wmo.int/doc\\_num.php?explnum\\_id=10836](https://library.wmo.int/doc_num.php?explnum_id=10836)
  - Climate Science Basis: Forestry in Saint Lucia, p. 28
- 7 Tips for Proposals on Climate Change  
<https://proposalsforngos.com/7-tips-for-proposals-on-climate-change/>
- Crafting a proposal from the bottom-up: An example from Senegal  
<https://gfcs.wmo.int/crafting-a-proposal-from-the-bottom-up-senegal>
- Proposed Work Plan for Programme of Cooperation for Climate Change Adaptation in West Africa  
<https://gfcs.wmo.int/sites/default/files/projects/Programme%20of%20Cooperation%20for%20Climate%20Change%20Adaptation%20in%20West%20Africa//Reworked%20Greece%20Project%20proposal%20on%20CC%20%26%20Adaptation%20-%20v4.0%5B1%5D.pdf>
- Green Climate Fund Approved Climate Action Project Proposals  
<https://www.greenclimate.fund/projects>