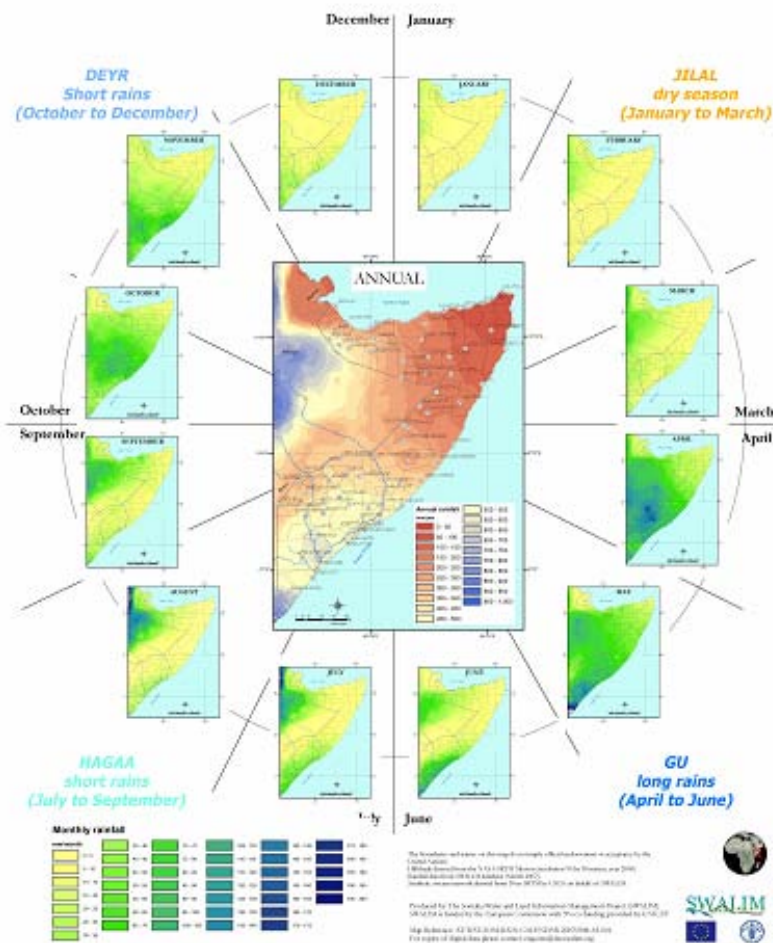




Climate of Somalia



Technical Report No. W-01
Oct 2007

Somalia Water and Land Information Management
Ngecha Road, Lake View. P.O Box 30470-00100, Nairobi, Kenya.
Tel +254 020 4000300 - Fax +254 020 4000333,
Email: enquiries@faoswalim.org Website: <http://www.faoswalim.org>.



Disclaimer

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations and the SWALIM Project concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

This document should be cited as follows:

Muchiri P.W. (2007), Climate of Somalia. Technical Report No W-01, FAO-SWALIM, Nairobi, Kenya.

Acknowledgement

I am grateful to Hussein Gadain, SWALIM Water Coordinator for the help and guidance provided during the production of this report.

Many thanks to Dr. Zoltan Balint, SWALIM Chief Technical Advisor and Flavian Muthusi, SWALIM Water Resources Officer for their technical input.

Special thanks are due to the Somali people who made numerous contributions to this report, special thanks goes to Prof. Musse Shaie, SWALIM Land Coordinator and Sidow. Adow of FEWS NET Somalia.

Thanks are due to Christian Omuto of the University of Nairobi who reviewed this document.

Table of Contents

Disclaimer.....	ii
Acknowledgement.....	iii
Table of Contents	iv
List of Figures.....	vi
List of Appendices.....	vii
List of Abbreviations	viii
List of Abbreviations	viii
Glossary of terms.....	ix
A Note on Spellings and Units	ix
1. BACKGROUND.....	1
1.1 Significance of Climate.....	1
1.2 Climate of Somalia at a Glance	2
1.3 Factors Influencing the Climate of Somalia	3
1.3.1 Inter Tropical Convergence Zone (ITCZ).....	3
1.3.2 Southwest and northeast monsoon winds	3
1.4 History of Climate and Meteorological Observations in Somalia	5
2. CLIMATE CHARACTERISTICS OF SOMALIA.....	8
2.1 Data Availability.....	8
2.2.1 Temporal rainfall distribution in Somalia	13
Figure 6: Deyr rainfall distribution in Somalia	16
2.2.2 Spatial rainfall distribution in Somalia	17
2.2.3 Rainfall variability	17
2.3 Evapotranspiration	20
2.4 Water Balance.....	22
2.5 Length of Growing Period (LGP).....	25

2.6 Air Temperature.....	28
2.6.1 Spatial and temporal variations of mean air temperature in Somalia.....	28
2.6.2 Mean maxima and minima temperatures	31
2.7 Atmospheric Humidity.....	31
2.8 Wind.....	34
2.8.1 Wind speed	34
2.8.2 Wind direction	37
3. CLIMATE CLASSIFICATION.....	38
3.1 Introduction.....	38
3.2 Koppen Classification Method	38
3.2.1 Group A: Tropical/Mega-thermal climates	39
3.2.2 Group B: Dry (arid and semi-arid) climates.....	39
3.2.3 Group C: Temperate/meso-thermal climates	40
3.2.4 Group D: Continental/micro-thermal climate	40
3.2.5 Group E: Polar climates	40
3.3 Thornthwaite’s Climate Classification.....	42
3.4 FAO Eco-climate Classification	44
Bibliography	47

List of Figures

Figure 1: Seasonal wind directions in Somalia	4
Figure 2: Rainfall observation network in Somalia(April, 2007).....	7
Figure 3: Historical weather monitoring network in Somalia	10
Figure 4: Mean annual rainfall distribution in Somalia.....	12
Figure 5: Gu rainfall distribution in Somalia.....	14
Figure 6: Deyr rainfall distribution in Somalia	16
Figure 7: Rainfall variability in Somalia	19
Figure 8: Mean annual PET distribution in Somalia	21
Figure 9: PET distribution for some selected stations.....	22
Figure 10: Moisture index distribution in Somalia.....	24
Figure 11: Mean annual temperature distribution	29
Figure 12: Temperature distribution at some selected stations	30
Figure 13: Map of relative humidity	33
Figure 14: Wind speed distribution	35
Figure 15: Wind speed at selected stations.....	36
Figure 16: Koppen climate classification in Somalia.....	41
Figure 18: FAO Eco-climate classification for Somalia	46

List of Appendices

Appendix 1: Temporal rainfall distribution in Somalia.....	48
Appendix 2: Seasonal distribution of rainfall.....	52
Appendix 3: Mean monthly PET in Somalia (1963-1990).....	58
Appendix .4: Moisture deficit index for selected stations in Somalia.....	58
Appendix .4: Moisture deficit index for selected stations in Somalia.....	59
Appendix 5: LGP calculations per station.....	60
Appendix 6: LGP characteristics.....	61
Appendix 7: Legend for LGP map of Somalia.....	62
Appendix 8: Monthly temperature distribution.....	63
Appendix 9: Daily mean temperatures.....	69
Appendix 10: Daily mean minimum temperature.....	70
Appendix 11: Daily mean maximum temperature.....	71
Appendix 12: Daily mean temperature range.....	72
Appendix 13: Table of relative humidity (%).....	73

List of Abbreviations

<i>ITCZ</i>	Inter tropical Convergence Zone
<i>ICAO</i>	International Civil Aviation Organisation
<i>FAO</i>	Food and Agriculture Organisation
<i>SWALIM</i>	Somalia Water and Land Information Management
<i>BMO</i>	British Meteorological Office
<i>PET</i>	Potential Evapotranspiration
<i>MDI</i>	Moisture Deficit Index
<i>LGP</i>	Length of Growing Period
<i>P</i>	Precipitation
<i>RH</i>	Relative Humidity
<i>ADRA</i>	Adventist Development and Relief Agency
<i>FSAU</i>	Food Security Analysis Unit- Somalia
<i>COOPI</i>	Cooperazione Internazionale
<i>SC UK</i>	Save the Children - UK
<i>CARE</i>	Cooperation Assistance Relief Everywhere
<i>ADRA</i>	Adventist Development Relief Agency
<i>ACF</i>	Action Internatinalre Contre la Faim
<i>GAA</i>	German Agro-Action
<i>MDGs</i>	Millennium Development Goals
<i>PSAWEN</i>	Puntland State Agency for Water, Energy and Mineral Development
<i>WVI</i>	World Vision International

Glossary of terms

<i>Deyr</i>	October to November, minor wet season
<i>Gu</i>	April to June, major wet season
<i>Hagaa</i>	July to September, minor dry season
<i>Jilal</i>	December to March major dry season in Somalia
Kharif	Strong winds experienced in July in most parts of northern Somalia.
Monsoon	Wind pattern that changes direction depending on the season. The term is applied to seasonal winds in which the wind blows from e.g. southwest monsoon originates from southwest direction.
Tropics	This is the geographic region of the earth centred on the Equator and limited in latitude by the Tropic of Cancer in the northern hemisphere, at approximately 23°30' (23.5°) N latitude, and the Tropic of Capricorn in the southern hemisphere at 23°30' (23.5°) S latitude. This region is also referred to as the tropical zone and the torrid zone .

A Note on Spellings and Units

Spellings on place names and seasons in Somalia are very variable. Attempts have been made to use the same spellings throughout this document, but there may be discrepancies! Phonetics are usually similar even if the spelling differs, although it can sometimes take some thought. H and X may be used interchangeably, as in Haggai/Xaggai, and Huddur/Xuddur. H and J are also interchanged, for example Jilaal/Hilaal and Ganale/Janale. Baidoa is often spelled Baydhabo. Luuq is variously referred to as Luuq Ganane, Lug Ganana, or a similar combination. Balcad may be spelled without the 'c'. Jowhar may be spelled Jawhar, Johar or Giohar. Kismayo can be spelt Chismayu. Hopefully most of the discrepancies have been removed.

System of International Units (S.I.) applies throughout this document.