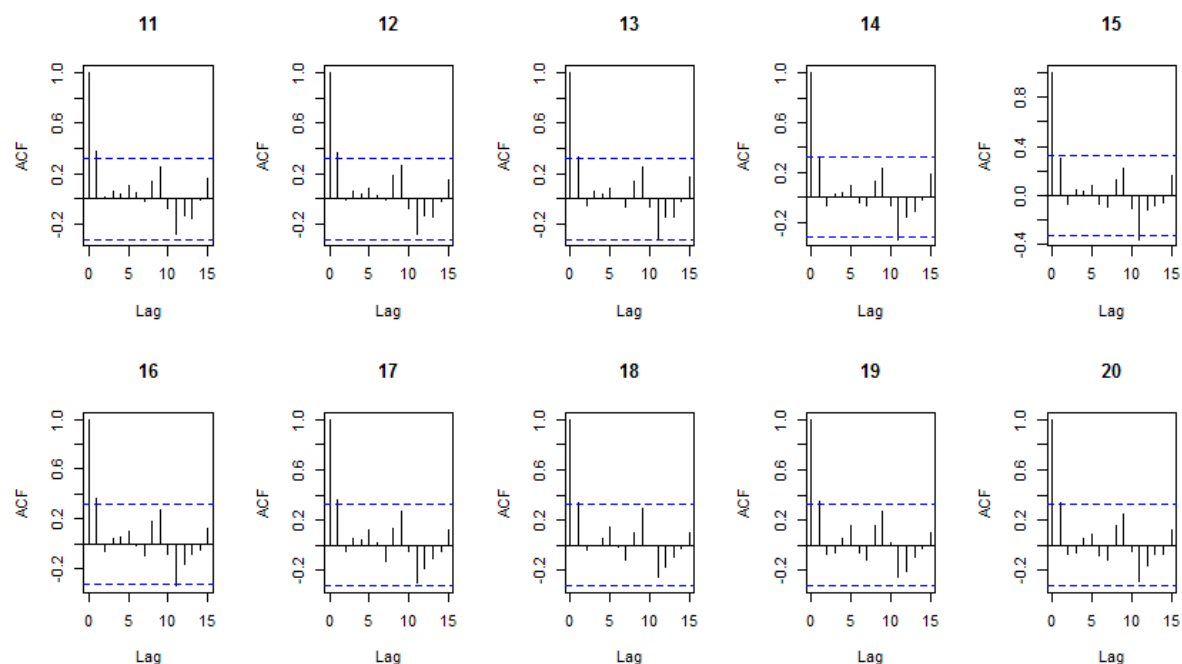
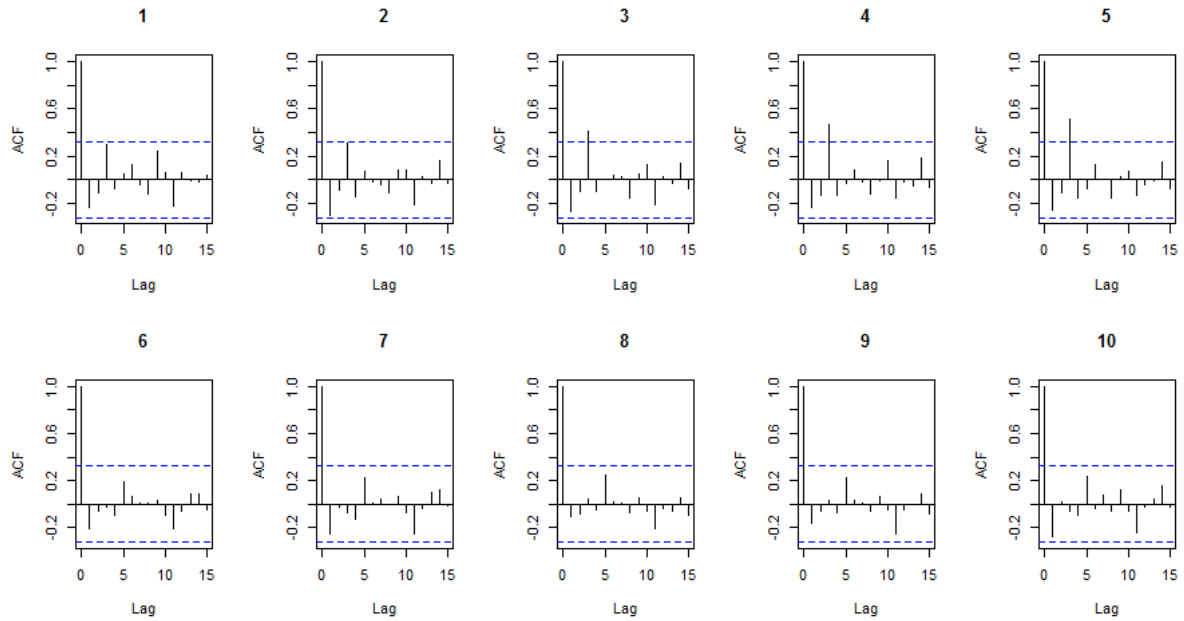


Online Resource 1 (a). Independent gauge stations used for validating CHIRPS-v2 product

Station name	Country	Lat.	Long.	Data Period	Valid samples	% Gap	Source
Alupe	Kenya	0.47	34.12	1981 - 2004	285	0.99	KMD
Bomet	Kenya	-0.78	35.33	1981 - 2000	240	1.00	KMD
Bungoma Water	Kenya	0.58	34.57	1981 - 2004	286	0.99	KMD
Crescent Island	Kenya	-0.77464	36.40681	1981 - 2010	343	0.95	Private farm
Gilgil Kwetu Farm	Kenya	-0.34424	36.30337	1981 - 2010	356	0.99	Private farm
Homabay	Kenya	-0.53	34.47	1981 - 2004	284	0.99	KMD
Kericho	Kenya	-0.48	35.18	1981 - 2008	334	0.99	KMD
Loldia	Kenya	-0.71764	36.32059	1993 - 2012	205	0.85	Private farm
Luweero	Uganda	1.067	32.467	1981 - 2016	397	0.92	Research station
Maseno Veterinary	Kenya	0	34.6	1981 - 2004	286	0.99	Research station
Mombasa	Kenya	-4.033	39.617	1981 - 1998	185	0.86	KMD
Rusinga	Kenya	-0.42	34.13	1981 - 2004	280	0.97	KMD
Sotik Monieri Farm	Kenya	-0.65	35.07	1981 - 2004	285	0.99	Private farm
Tinderet Tea	Kenya	0.02	35.35	1981 - 2004	284	0.99	Private farm
Tengeru	Tanzania	-3.38333	36.86667	2005 - 2017	127	0.81	Research station
Naivasha Korongo Farm	Kenya	-0.75	36.683	1981 - 1985	35	0.58	Private farm



Online resource 1 (b). Sample autocorrelation function (ACF) for annual rainfall. Time series rainfall data was considered serially auto-correlated if ACF for the first three lags exceed the upper and lower bounds.



Online resource 1 (c). Sample autocorrelation function (ACF) for December rainfall. A series was considered serially auto-correlated if ACF for the first three lags exceed the upper and lower bounds.