Investigating and verifying the skill of ECMWF deterministic weather forecasts in the summer 2006 over Ethiopia

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Location of Ethiopia

• East Africa within 3-15°N latitude and 32-48°E longitude
Seasonal classifications over Ethiopia

- Summer (Kiremt): June to September
- Winter (Bega): October to January
- Spring (Belg): February to May
Annual and seasonal rainfall climatology: Ethiopia

Annual

Summer
Percentage of mean summer rainfall contributed to the annual
Weather forecasting

• Short-range: up to 3 days
• Medium range: up to 10 days (Dekadal)
• Long-range (monthly to seasonal)
Forecast products used

- ECMWF
- UK Met-Office (Hadley Centre)
- IRI
- NOAA (NCEP-CPC)
ECMWF products

• Real-time weather charts
• Prognostic charts
  – Deterministic weather forecasts ~ seven days
• Seasonal ensemble forecasts
Weather forecasts

• Onset and cessation of each season
• Seasonal anomalies
• Extreme events (anomalous drought, floods)
• Prolonged dry or wet seasons
• Early warnings to mitigate weather related hazards
Summer 2006
Percent of normal rainfall for the month of June 2006

Percent of normal the month of July 2006

Percent of normal rainfall for the month of August 2006

Percent of normal rainfall for the month of September (1-20) 2006
Percent of normal rainfall amounts for June to September 2006
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Flood Affected Areas as of August 24, 2006

The delineation of national and international boundaries must not be considered authoritative.
Data courtesy of DPFA.
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Conclusion

- The skill of global and regional weather forecasting models
- ECMWF’ deterministic weather forecasts attain the modest skill in forecasting the possible occurrence of heavy fall that generate flash floods and river floods
- Poor performance for longer time scales (monthly to seasonal scales)