Development and Implementation Status
Operations, Data and Parameters
HYDROLOGIC RESEARCH CENTER
Development and Implementation Status - CARFFG

- Real-time data ingest is complete through Kazakhstan Regional Center in Astana
- HRC prototype complete and soon to be used for retrospective runs to provide history to the real-time databases of the system in Astana
- Inauguration version of system ported in a server provided by Kazakhstan for demonstration in this meeting.
  - Graphical interface only contains very recent dates
  - System has historical data since October 1, 2015
- Models calibrated with available data from global databases and from the countries
- Bias adjustment for remotely sensed data completed with the historical gauge databases provided by the countries, in collaboration with the country representatives.
- Currently system is watched for normal operation and timely products
- Training steps 1 – 3 completed.
Real-Time Data – Country Gauges

Need to check this carefully at the Regional Center to make sure that all reporting gauges are included.
Real Time Data – Satellite Products

- GHE hourly (with a few minutes latency – from NOAA/NESDIS using IR + Models)
- MWGHE hourly (significant latency from HRC using MW from NOAA/CPC CMORPH)
- IMS (Snow/Ice/Glaciers – 24 hour updates)
Real Time External Model Data

- Kazakhstan mesoscale WRF (2 domains and 2 resolutions)
- GFS for temperature computations feeding the snow and frozen ground models
Historical Data for Precipitation Bias Adjustment

![Central Asia Bias Regions Map]

- 9 – pink: central low elev
- 12 – lt blue: north Caspian inland
- 15 – purple: north mid elev
- 18 – blue: southern lower elev
- 22 – green: KYR western
- 30 – drk green: TAJ – NOT DONE

**Daily Data:**
- 40 – royal blue: UZB high elev
- 50 – drk orange: UZB/TRKM low elev

**51 – lt. blue: UZB/TRKM eastern, higher elev**
Parameters

- Soil model parameters based on soil texture and land-use and land cover (FAO databases) with initial adjustments from limited retrospective runs of the system.

- Snow model parameters based on literature with adjustment on the basis of limited data provided by countries and on the basis of IMS coverage estimates.
HRC Contributing Staff

- Dr. Konstantine Georgakakos (Technical Direction)
- Mr. Robert Jubach (Program Management and Links to Disaster Management)
- Dr. Rochelle Graham (Training)
- Dr. Theresa Modrick (GIS/Hydrometeorology)
- Dr. Eylon Shamir (Surface Hydrology/Soil-Snow-Frozen Ground)
- Mr. Cristopher Spencer (Programming of backbone)
- Mr. Jason Sperfslage (Lead Programmer and Programming of Graphical interfaces)

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