Purpose

Utility RULEADJ computes a constant adjustment value by averaging the deviations between the observed pool elevations and the rulecurve elevations.

This constant adjustment value is then used in the reservoir operation scheme to establish the adjusted rulecurve. The adjusted rulecurve is then used in place of the unadjusted rulecurve to control the reservoir operation in an adjusted forecast run.

Input Summary

Keyword	Definition and Format
RULEADJ	Input opening keyword for utility
PARMS	Parameter opening keyword for utility
CURVE	Rulecurve definition: If defined here: - 'j' dates followed by 'j' values of elevation - dates - integer between 1 and 366 in ascending order - elevations within ELVSSTOR curve 1/ If referenced to original definition: - name and level number of scheme in which it was originally defined
[RULETIME]	Time of hydrologic day rulecurve is set: - needed only if CURVE is defined in this scheme - integer between 0 and 24 inclusive; default is 0
PERIODS	Integer number of time intervals used to obtain rulecurve adjustment by averaging deviations between observed pool elevations and rulecurve elevations
MAXQI	Inflow value above which deviations from the rulecurve are ignored
ELEVDIFF	Maximum difference between observed levels and rulecurve for which to ignore deviations
ENDPARMS	Parameter ending keyword for utility

Keyword	Definition and Format
TIME-SERIES 2/	Time series opening keyword for utility
ELEV	Observed pool elevation time series: - data time interval = Operation data time interval - dimension = L - units = M - missing values are allowed
ENDTS	Time series ending keyword for utility
[CARRYOVER]	Carryover opening keyword for utility (only needed if carryover values entered)
[MSNG]	Integer number of missing observed elevations; default is 0
[DEV]	Deviations for PERIODS time intervals prior to run; at the start of forecast run default is 0.0
[ENDCO]	Carryover ending keyword for utility: - only needed if CARRYOVER entered
ENDRADJ	Input ending keyword for utility

Notes:

1/ ELVSSTOR is elevation vs storage curve entered in the general parameter section.

2/ See 'Time Series Definition' in Section V.3.3-RES-SNGL-SPEC.

Input Examples

This example implies that the rulecurve has been defined in INDSRCHGE scheme.

```
RULEADJ(1)
PARMS
CURVE     INDSRCHGE(1)
PERIODS      4
ELEVDIFF         3.00
MAXQI     40000.00
ENDP
TIME-SERIES
ELEV FOGG1    PELV  6
ENDTS
CARRYOVER
MSNG    0
DEV                0.13     0.13     -0.14     -0.05
ENDCO
ENDRADJ
```

Methods

The rulecurve adjustment is computed from averaging PERIODS values of deviations between the observed pool elevations and the rulecurve elevations. The deviations to be used in the averaging are the last PERIODS deviations including the deviation from the last observed pool elevation.

The deviations are established according to the following rules:

1. If the observed pool elevation is missing for any time period, the deviation for that time interval is assigned the value for the previous time interval.

2. If the missing values continue for half of PERIODS, the deviations for those time intervals are set to zero until an observed elevation is found.

3. If the difference between observed and rule curve elevations is greater than ELEVDIFF or the inflow is greater than MAXQI, the deviation for that time interval is set to zero.

User Guidelines

RULEADJ is rarely used for a power dam since diurnal and daily variations in power requirements keep the pool from being brought back to the rule curve except at the end of a daily or weekly cycle. RULEADJ would be usable for a power dam only if the pool is brought back to the rule curve at the end of each time interval. In that case RULECURVE would be more appropriate for use than the POWERGEN scheme.