**INTRODUCTION**

SWAT is a physically based, continuous time and a public domain hydrological model. The ArcView integrated SWAT interface, AVSWAT, provides a user friendly GUI. The model has been tested in different tropical watersheds and reported to be able to well explain watershed hydrological processes. To benefit from its free accessibility and good modeling capability, this model has been tested for the Ethiopian condition.

**OBJECTIVE**

To test suitability of SWAT hydrological model in simulating the hydrological processes of Meki Watershed

**METHODOLOGY**

- **Location:** Meki Watershed, Central Ethiopia
- **Gauging Station:** Meki Village
- **Average Elevation:** 2143 m.a.s.l.
- **Landuse:** Largely agriculture
- **Area Coverage:** 2233 km²
- **Major Soils:** Eutric Cambisols (CMe) & Eutric Vertisols

**Methodological steps followed**

1. **Watershed Delineation**
2. **HRU Determination**
3. **Baseflow Separation**
4. **Sensitivity Analysis**
5. **Flow Simulation**
6. **Calibration and Validation**
7. **Simulated Flow Evaluation**

**RESULTS AND CONCLUSION**

The results showed that SWAT is able to simulate the hydrological characteristics of the Meki watershed very well. Hence, the model can be used for further hydrological studies in the watershed

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**Calibration and Validation of SWAT Hydrological Model for Meki Watershed, Ethiopia**

Lijalem Zeray Abraham¹, Jackson Roehrig¹, and Dilnesaw Alamirew Chekol²

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**Calibration and Validation Statistics**

<table>
<thead>
<tr>
<th>Period (Monthly)</th>
<th>Standard Error (m%)</th>
<th>Initial Value</th>
<th>Adjusted Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration</td>
<td>1985-1989</td>
<td>7.28</td>
<td>7.63</td>
</tr>
<tr>
<td></td>
<td>1990-1992</td>
<td>18.85</td>
<td>22.22</td>
</tr>
<tr>
<td>Validation</td>
<td>7.62</td>
<td>8.11</td>
<td>5.47</td>
</tr>
</tbody>
</table>

**Parameters Used**

Manual flow calibration procedure used (diagram extended from Santhi et al. 2001)

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**Graphs**

- Calibration and validation graphs for monthly flows
- Graphs showing sensitivity analysis results

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