1. Introduction

Gotjawal (Forest on Lava area)
- Gotjawal was formed by the lava flow along the slopes as a result of the volcanic activity of the oreums which are distributed all over Jeju Island, the Repubic of Korea. Gotjawal areas are formed as very young lava in less than 10,000 years, including a rough surface (Aa lava) and smooth terrain (Pahoehoe lava), depending on viscosity and velocity of lava flows.
- Aa is a type of lava rock with high viscosity and sharp and jagged surface and Pahoehoe is a type of lava rock with low viscosity and smooth and ropy surface.
- Wetlands in Gotjawal are created with "Pahoehoe lava" and very important in terms of water storage.

Objectives
- Analysis of Hydrographs in two different wetlands.
- Identification of Initial rainfall with respect to antecedent non-rainfall days.

Site Description
- Annual average temperature and precipitation is 13.6℃ and 2,379.7mm. Area in type A and B is 1,180m² and 452m².
- Water level measurements and initial water level response time analysis

2. Rainfalls and Hydrographs

<table>
<thead>
<tr>
<th>Event Date</th>
<th>Total rainfall (mm)</th>
<th>Duration (hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-May</td>
<td>259</td>
<td>48</td>
</tr>
<tr>
<td>26-June</td>
<td>125</td>
<td>24</td>
</tr>
<tr>
<td>17-July</td>
<td>134</td>
<td>62</td>
</tr>
<tr>
<td>27-August</td>
<td>211.5</td>
<td>59</td>
</tr>
<tr>
<td>22-September</td>
<td>104.5</td>
<td>25</td>
</tr>
<tr>
<td>1-October</td>
<td>258</td>
<td>32</td>
</tr>
</tbody>
</table>

Rainfall events

Hydrographs in two different areas

Type A (Layer with little soil) - The maximum water level was 3.03m. Water level was sensitive to rainfall. Except heavy rainfall, all rainfall were infiltrated into the bottom of the wetland.
Type B (Shallow soil layer) - The maximum water level was 0.93m. Water level decreased very slowly. After May 2019, water level remained above 10cm.

3. Initial rainfalls
Initial rainfalls
- The initial rainfalls depends on the thickness of the soil layer, which affects the amount of water resources in the wetland and as well as the diversity of plant species.

4. References