Spread F Occurrence at Ilorin in the Equatorial Region

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14th International Symposium on Equatorial Aeronomy, (ISEA), Bahir Dar University, Bahir Dar, Ethiopia, October 19-23, 2015
Types of Spread F

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Time and Duration

- Appears between 1900 and 2100 LT
- Disappears usually after 6000 or 7000 LT
- Duration is about 10 or 11 hours
Available Month in Year 2010

% of Occurrence

0.00% 5.00% 10.00% 15.00% 20.00% 25.00% 30.00% 35.00% 40.00%

April 27.92% May 17.74% June 17.50% July 25.54% August 30.91% September 33.89% October 34.01% November 29.58%

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OCCURRENCE CLASSIFICATION

14th International Symposium on Equatorial Aeronomy, (ISEA), Bahir Dar University, Bahir Dar, Ethiopia, October 19-23, 2015
<table>
<thead>
<tr>
<th></th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
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<tbody>
<tr>
<td><strong>RSF</strong></td>
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<tr>
<td>ILORIN 2010</td>
<td>74.63%</td>
<td>61.36%</td>
<td>61.11%</td>
<td>58.95%</td>
<td>62.61%</td>
<td>63.15%</td>
<td>63.15%</td>
<td>53.52%</td>
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<td><strong>PSF</strong></td>
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<tr>
<td>ILORIN 2010</td>
<td>10.95%</td>
<td>25.76%</td>
<td>25.40%</td>
<td>27.89%</td>
<td>23.48%</td>
<td>16.39%</td>
<td>13.04%</td>
<td>21.13%</td>
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<tr>
<td><strong>MSF</strong></td>
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<tr>
<td>ILORIN 2010</td>
<td>14.43%</td>
<td>12.88%</td>
<td>13.49%</td>
<td>13.16%</td>
<td>13.91%</td>
<td>20.48%</td>
<td>26.88%</td>
<td>25.35%</td>
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**GREEN**: HIGHEST OCCURRENCE  
**BLUE**: LOW OCCURRENCE  
**BLACK**: LOWEST OCCURRENCE

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SPREAD F OCCURRENCE IN SEPTEMBER

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SLIDE SHOW

• Increase in height before the spread F
• Starts with two or three MSF and develops into RSF for most of the time.
• Becomes MSF and usually ends up with FSF
Rate of change of height

Is there a triggering rate of change of height?
Summary

- Occurs between 1900 and 0700 local time
- The duration of occurrence is for 10 & 11 hours
- Occurrence ranged between 18 and 34
- Occurrence during the solstices is less than during the equinoxes.
- The range type of spread is more common than the frequency and mixed types.
- The height of occurrence varied between 230 and 405 km.
- Vertical drift velocity around the time of the first appearance of spread F was also investigated.