

NIA (#0033): Total of 121 orbits. $\lambda_\Omega = 165^\circ$, $\lambda_g - \lambda_\Omega = 198.0^\circ$, $\beta_g = 4.3^\circ$, $\Delta r = 3^\circ$, $\Delta \lambda_\Omega = 10^\circ$. This activity is not the traditional ‘Northern iota Aquariids’ and it is slightly above the high sporadic background activity. The maximum is quite unclear between $\lambda_\Omega = 160^\circ \sim 170^\circ$.

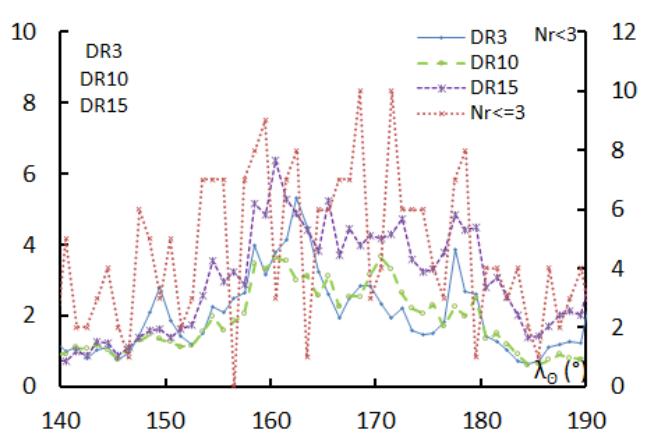
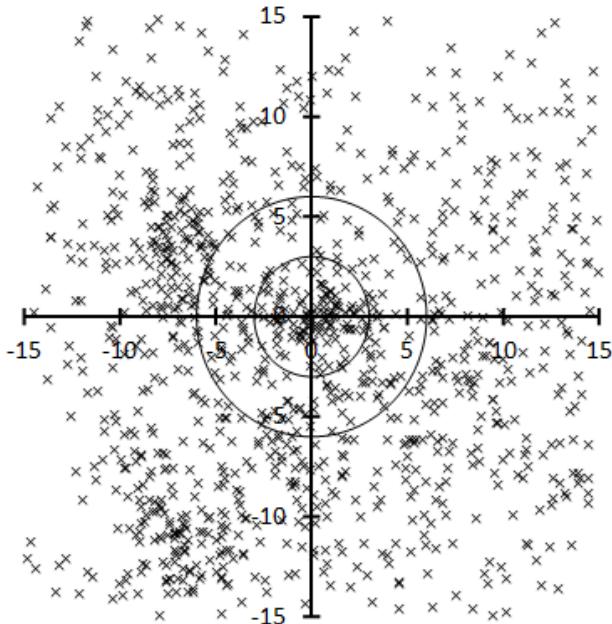


Table 1 – Number per year.

| Year | N | Year | N |
|------|----|------|----|
| 2007 | 5 | 2013 | 11 |
| 2008 | 6 | 2014 | 9 |
| 2009 | 9 | 2015 | 1 |
| 2010 | 17 | 2016 | 9 |
| 2011 | 20 | 2017 | 10 |
| 2012 | 20 | 2018 | 4 |

Table 2 – Activity profiles.

| | λ_Ω | Max |
|-------|------------------|-----|
| Nr<=3 | 168.5 | 10 |
| DR3 | 162.5 | 5.3 |
| DR10 | 170.5 | 3.7 |
| DR15 | 160.5 | 6.4 |

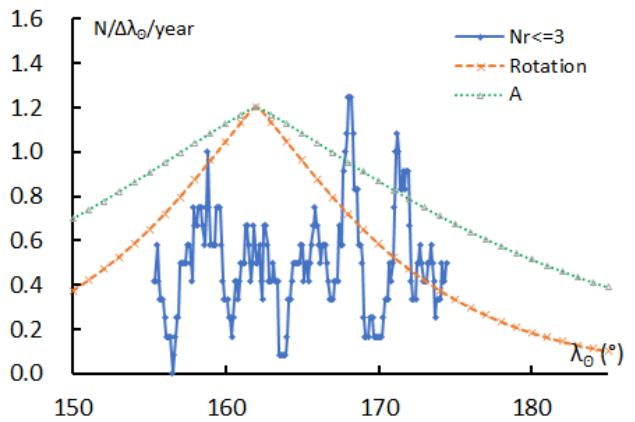


Table 3 – Evolution of the orbital parameters during the activity period.

| λ_Ω | $\lambda_g - \lambda_\Omega$ | β_g | α_g | δ_g | v_g | e | q | i | ω | Ω | λ_Π | β_Π | a |
|------------------|------------------------------|-----------|------------|------------|-------|-------|-------|-----|----------|----------|---------------|-------------|------|
| 150 | 198.2 | 3.6 | 347.8 | -1.4 | 29.8 | 0.849 | 0.256 | 5.2 | 308.8 | 150.0 | 99.0 | -4.1 | 1.70 |
| 151 | 198.2 | 3.6 | 348.7 | -1.0 | 29.8 | 0.850 | 0.256 | 5.3 | 308.8 | 151.0 | 99.9 | -4.1 | 1.70 |
| 152 | 198.2 | 3.6 | 349.6 | -0.6 | 29.8 | 0.850 | 0.256 | 5.3 | 308.7 | 152.0 | 100.8 | -4.1 | 1.70 |
| 153 | 198.1 | 3.6 | 350.5 | -0.2 | 29.9 | 0.850 | 0.256 | 5.3 | 308.7 | 153.0 | 101.8 | -4.1 | 1.71 |
| 154 | 198.1 | 3.6 | 351.3 | 0.2 | 29.9 | 0.850 | 0.256 | 5.3 | 308.6 | 154.0 | 102.7 | -4.1 | 1.71 |
| 155 | 198.1 | 3.6 | 352.2 | 0.6 | 29.9 | 0.850 | 0.257 | 5.3 | 308.5 | 155.0 | 103.7 | -4.1 | 1.72 |
| 156 | 198.1 | 3.6 | 353.1 | 1.0 | 29.9 | 0.851 | 0.257 | 5.3 | 308.5 | 156.0 | 104.6 | -4.1 | 1.72 |
| 157 | 198.1 | 3.6 | 354.0 | 1.3 | 29.9 | 0.851 | 0.257 | 5.3 | 308.4 | 157.0 | 105.5 | -4.2 | 1.72 |
| 158 | 198.0 | 3.6 | 354.9 | 1.7 | 29.9 | 0.851 | 0.257 | 5.3 | 308.4 | 158.0 | 106.5 | -4.2 | 1.73 |
| 159 | 198.0 | 3.6 | 355.8 | 2.1 | 29.9 | 0.851 | 0.257 | 5.3 | 308.3 | 159.0 | 107.4 | -4.2 | 1.73 |
| 160 | 198.0 | 3.6 | 356.7 | 2.5 | 29.9 | 0.851 | 0.258 | 5.3 | 308.2 | 160.0 | 108.4 | -4.2 | 1.74 |
| 161 | 198.0 | 3.6 | 357.6 | 2.9 | 29.9 | 0.852 | 0.258 | 5.3 | 308.2 | 161.0 | 109.3 | -4.2 | 1.74 |
| 162 | 198.0 | 3.6 | 358.5 | 3.3 | 29.9 | 0.852 | 0.258 | 5.3 | 308.1 | 162.0 | 110.2 | -4.2 | 1.74 |
| 163 | 197.9 | 3.7 | 359.4 | 3.7 | 29.9 | 0.852 | 0.258 | 5.4 | 308.1 | 163.0 | 111.2 | -4.2 | 1.75 |
| 164 | 197.9 | 3.7 | 0.3 | 4.1 | 30.0 | 0.852 | 0.259 | 5.4 | 308.0 | 164.0 | 112.1 | -4.2 | 1.75 |
| 165 | 197.9 | 3.7 | 1.2 | 4.5 | 30.0 | 0.852 | 0.259 | 5.4 | 307.9 | 165.0 | 113.1 | -4.2 | 1.75 |
| 166 | 197.9 | 3.7 | 2.1 | 4.9 | 30.0 | 0.853 | 0.259 | 5.4 | 307.9 | 166.0 | 114.0 | -4.2 | 1.76 |
| 167 | 197.9 | 3.7 | 3.0 | 5.3 | 30.0 | 0.853 | 0.259 | 5.4 | 307.8 | 167.0 | 114.9 | -4.3 | 1.76 |
| 168 | 197.8 | 3.7 | 3.9 | 5.7 | 30.0 | 0.853 | 0.260 | 5.4 | 307.8 | 168.0 | 115.9 | -4.3 | 1.76 |
| 169 | 197.8 | 3.7 | 4.8 | 6.1 | 30.0 | 0.853 | 0.260 | 5.4 | 307.7 | 169.0 | 116.8 | -4.3 | 1.77 |

Table 3 – Continued, evolution of the orbital parameters during the activity period.

| λ_O | $\lambda_g - \lambda_O$ | β_g | α_g | δ_g | v_g | e | q | i | ω | Ω | λ_{π} | β_{π} | a |
|-------------|-------------------------|-----------|------------|------------|-------|-------|-------|-----|----------|----------|-----------------|---------------|------|
| 170 | 197.8 | 3.7 | 5.7 | 6.5 | 30.0 | 0.853 | 0.260 | 5.4 | 307.6 | 170.0 | 117.8 | -4.3 | 1.77 |
| 171 | 197.8 | 3.7 | 6.6 | 6.9 | 30.0 | 0.853 | 0.260 | 5.4 | 307.6 | 171.0 | 118.7 | -4.3 | 1.78 |
| 172 | 197.8 | 3.7 | 7.5 | 7.3 | 30.0 | 0.854 | 0.260 | 5.4 | 307.5 | 172.0 | 119.6 | -4.3 | 1.78 |
| 173 | 197.7 | 3.7 | 8.4 | 7.7 | 30.0 | 0.854 | 0.261 | 5.4 | 307.5 | 173.0 | 120.6 | -4.3 | 1.78 |
| 174 | 197.7 | 3.7 | 9.3 | 8.1 | 30.0 | 0.854 | 0.261 | 5.4 | 307.4 | 174.0 | 121.5 | -4.3 | 1.79 |
| 175 | 197.7 | 3.7 | 10.2 | 8.5 | 30.1 | 0.854 | 0.261 | 5.5 | 307.3 | 175.0 | 122.5 | -4.3 | 1.79 |
| 176 | 197.7 | 3.7 | 11.1 | 8.8 | 30.1 | 0.854 | 0.261 | 5.5 | 307.3 | 176.0 | 123.4 | -4.3 | 1.79 |
| 177 | 197.7 | 3.8 | 12.0 | 9.2 | 30.1 | 0.854 | 0.262 | 5.5 | 307.2 | 177.0 | 124.3 | -4.4 | 1.80 |
| 178 | 197.6 | 3.8 | 12.9 | 9.6 | 30.1 | 0.855 | 0.262 | 5.5 | 307.2 | 178.0 | 125.3 | -4.4 | 1.80 |
| 179 | 197.6 | 3.8 | 13.8 | 10.0 | 30.1 | 0.855 | 0.262 | 5.5 | 307.1 | 179.0 | 126.2 | -4.4 | 1.80 |
| 180 | 197.6 | 3.8 | 14.8 | 10.4 | 30.1 | 0.855 | 0.262 | 5.5 | 307.0 | 180.0 | 127.2 | -4.4 | 1.81 |
| 181 | 197.6 | 3.8 | 15.7 | 10.8 | 30.1 | 0.855 | 0.263 | 5.5 | 307.0 | 181.0 | 128.1 | -4.4 | 1.81 |
| 182 | 197.6 | 3.8 | 16.6 | 11.2 | 30.1 | 0.855 | 0.263 | 5.5 | 306.9 | 182.0 | 129.1 | -4.4 | 1.81 |
| 183 | 197.5 | 3.8 | 17.5 | 11.5 | 30.1 | 0.855 | 0.263 | 5.5 | 306.9 | 183.0 | 130.0 | -4.4 | 1.82 |
| 184 | 197.5 | 3.8 | 18.4 | 11.9 | 30.1 | 0.855 | 0.263 | 5.5 | 306.8 | 184.0 | 130.9 | -4.4 | 1.82 |
| 185 | 197.5 | 3.8 | 19.4 | 12.3 | 30.1 | 0.856 | 0.264 | 5.5 | 306.7 | 185.0 | 131.9 | -4.4 | 1.83 |