

Regression test

Test run started 2025-08-26T23:39:33Z  
Ashes version: 3.32.0

| Analysis_Loads_ramp-up |                                            |             |      |
|------------------------|--------------------------------------------|-------------|------|
| Load case set 1        |                                            |             |      |
| Load case              | Time series                                | Error score |      |
| Default                | Power (aero)                               | 0.000000    | PASS |
|                        | Torque (aero)                              | 0.000000    | PASS |
|                        | Thrust (aero)                              | 0.000000    | PASS |
|                        | RPM                                        | 0.000000    | PASS |
|                        | TSR                                        | 0.000000    | PASS |
|                        | Representative demanded pitch angle        | 0.000000    | PASS |
|                        | Power coef. (CP)                           | 0.000000    | PASS |
|                        | Thrust coef. (CT)                          | 0.000000    | PASS |
|                        | Torque coef. (CQ)                          | 0.000000    | PASS |
|                        | Tip speed                                  | 0.000000    | PASS |
|                        | 1P (one revolution)                        | 0.000000    | PASS |
|                        | nP (blade passing)                         | 0.000000    | PASS |
|                        | Azimuth angle                              | 0.000000    | PASS |
|                        | Rotation per timestep                      | 0.000000    | PASS |
|                        | Wind speed at hub, magnitude               | 0.000000    | PASS |
|                        | Wind angle at hub                          | 0.000000    | PASS |
|                        | Yaw angle relative to forward              | 0.000000    | PASS |
|                        | Yaw angle to reference direction           | 0.000000    | PASS |
|                        | Yaw error                                  | 0.000000    | PASS |
|                        | Torque about yaw axis                      | 0.000000    | PASS |
|                        | Power (electrical)                         | 0.000000    | PASS |
|                        | Torque                                     | 0.000000    | PASS |
|                        | Torque on main shaft                       | 0.000000    | PASS |
|                        | Torque diff. on main shaft                 | 0.000000    | PASS |
|                        | RPM                                        | 0.000000    | PASS |
|                        | Filtered RPM                               | 0.000000    | PASS |
|                        | Electricity production                     | 0.000000    | PASS |
|                        | Region                                     | 0.000000    | PASS |
|                        | Demanded collective pitch angle            | 0.000000    | PASS |
|                        | Cumulative demanded collective pitch angle | 0.000000    | PASS |
|                        | Demanded collective pitch angle rate       | 0.000000    | PASS |
|                        | Set point                                  | 0.000000    | PASS |
|                        | RPM error                                  | 0.000000    | PASS |

|            |                                     |          |      |
|------------|-------------------------------------|----------|------|
|            | P term                              | 0.000000 | PASS |
|            | I term                              | 0.000000 | PASS |
|            | D term                              | 0.000000 | PASS |
|            | Gain scheduling factor              | 0.000000 | PASS |
|            | Root force (magnitude)              | 0.000000 | PASS |
|            | Root moment (magnitude)             | 0.000000 | PASS |
|            | Root moment (out-of-plane)          | 0.000000 | PASS |
|            | Root moment (in-plane)              | 0.000000 | PASS |
|            | Root moment about shaft             | 0.000000 | PASS |
|            | Pitch angle                         | 0.000000 | PASS |
|            | Tip deflection (out-of-plane)       | 0.000000 | PASS |
|            | Tip deflection (in-plane)           | 0.000000 | PASS |
|            | Root torque                         | 0.000000 | PASS |
|            | Position (x)                        | 0.000000 | PASS |
|            | Position (y)                        | 0.000000 | PASS |
|            | Position (z)                        | 0.000000 | PASS |
|            | Displacement (u)                    | 0.000000 | PASS |
|            | Displacement (v)                    | 0.000000 | PASS |
|            | Displacement (w)                    | 0.000000 | PASS |
|            | Displacement magnitude              | 0.000000 | PASS |
|            | Speed                               | 0.000000 | PASS |
|            | Acceleration, magnitude             | 0.000000 | PASS |
|            | Rotational displacement (ru)        | 0.000000 | PASS |
|            | Rotational displacement (rv)        | 0.000000 | PASS |
|            | Rotational displacement (rw)        | 0.000000 | PASS |
|            | Rotational displacement magnitude   | 0.000000 | PASS |
|            | Rotational speed                    | 0.000000 | PASS |
|            | Rotational acceleration mag         | 0.000000 | PASS |
|            | Displacement period                 | 0.000000 | PASS |
|            | Displacement logarithmic decrement  | 0.000000 | PASS |
|            | Displacement damping ratio          | 0.000000 | PASS |
| Time steps | Power (aero)                        | 0.000000 | PASS |
|            | Torque (aero)                       | 0.000000 | PASS |
|            | Thrust (aero)                       | 0.000000 | PASS |
|            | RPM                                 | 0.000000 | PASS |
|            | TSR                                 | 0.000000 | PASS |
|            | Representative demanded pitch angle | 0.000000 | PASS |
|            | Power coef. (CP)                    | 0.000000 | PASS |
|            | Thrust coef. (CT)                   | 0.000000 | PASS |
|            | Torque coef. (CQ)                   | 0.000000 | PASS |
|            | Tip speed                           | 0.000000 | PASS |
|            | 1P (one revolution)                 | 0.000000 | PASS |

|  |                                            |          |      |
|--|--------------------------------------------|----------|------|
|  | nP (blade passing)                         | 0.000000 | PASS |
|  | Azimuth angle                              | 0.000000 | PASS |
|  | Rotation per timestep                      | 0.000000 | PASS |
|  | Wind speed at hub, magnitude               | 0.000000 | PASS |
|  | Wind angle at hub                          | 0.000000 | PASS |
|  | Yaw angle relative to forward              | 0.000000 | PASS |
|  | Yaw angle to reference direction           | 0.000000 | PASS |
|  | Yaw error                                  | 0.000000 | PASS |
|  | Torque about yaw axis                      | 0.000000 | PASS |
|  | Power (electrical)                         | 0.000000 | PASS |
|  | Torque                                     | 0.000000 | PASS |
|  | Torque on main shaft                       | 0.000000 | PASS |
|  | Torque diff. on main shaft                 | 0.000000 | PASS |
|  | RPM                                        | 0.000000 | PASS |
|  | Filtered RPM                               | 0.000000 | PASS |
|  | Electricity production                     | 0.000000 | PASS |
|  | Region                                     | 0.000000 | PASS |
|  | Demanded collective pitch angle            | 0.000000 | PASS |
|  | Cumulative demanded collective pitch angle | 0.000000 | PASS |
|  | Demanded collective pitch angle rate       | 0.000000 | PASS |
|  | Set point                                  | 0.000000 | PASS |
|  | RPM error                                  | 0.000000 | PASS |
|  | P term                                     | 0.000000 | PASS |
|  | I term                                     | 0.000000 | PASS |
|  | D term                                     | 0.000000 | PASS |
|  | Gain scheduling factor                     | 0.000000 | PASS |
|  | Root force (magnitude)                     | 0.000000 | PASS |
|  | Root moment (magnitude)                    | 0.000000 | PASS |
|  | Root moment (out-of-plane)                 | 0.000000 | PASS |
|  | Root moment (in-plane)                     | 0.000000 | PASS |
|  | Root moment about shaft                    | 0.000000 | PASS |
|  | Pitch angle                                | 0.000000 | PASS |
|  | Tip deflection (out-of-plane)              | 0.000000 | PASS |
|  | Tip deflection (in-plane)                  | 0.000000 | PASS |
|  | Root torque                                | 0.000000 | PASS |
|  | Position (x)                               | 0.000000 | PASS |
|  | Position (y)                               | 0.000000 | PASS |
|  | Position (z)                               | 0.000000 | PASS |
|  | Displacement (u)                           | 0.000000 | PASS |
|  | Displacement (v)                           | 0.000000 | PASS |
|  | Displacement (w)                           | 0.000000 | PASS |
|  | Displacement magnitude                     | 0.000000 | PASS |

|              |                                            |          |      |
|--------------|--------------------------------------------|----------|------|
|              | Speed                                      | 0.000000 | PASS |
|              | Acceleration, magnitude                    | 0.000000 | PASS |
|              | Rotational displacement (ru)               | 0.000000 | PASS |
|              | Rotational displacement (rv)               | 0.000000 | PASS |
|              | Rotational displacement (rw)               | 0.000000 | PASS |
|              | Rotational displacement magnitude          | 0.000000 | PASS |
|              | Rotational speed                           | 0.000000 | PASS |
|              | Rotational acceleration mag                | 0.000000 | PASS |
|              | Displacement period                        | 0.000000 | PASS |
|              | Displacement logarithmic decrement         | 0.000000 | PASS |
|              | Displacement damping ratio                 | 0.000000 | PASS |
| Curve linear | Power (aero)                               | 0.000000 | PASS |
|              | Torque (aero)                              | 0.000000 | PASS |
|              | Thrust (aero)                              | 0.000000 | PASS |
|              | RPM                                        | 0.000000 | PASS |
|              | TSR                                        | 0.000000 | PASS |
|              | Representative demanded pitch angle        | 0.000000 | PASS |
|              | Power coef. (CP)                           | 0.000000 | PASS |
|              | Thrust coef. (CT)                          | 0.000000 | PASS |
|              | Torque coef. (CQ)                          | 0.000000 | PASS |
|              | Tip speed                                  | 0.000000 | PASS |
|              | 1P (one revolution)                        | 0.000000 | PASS |
|              | nP (blade passing)                         | 0.000000 | PASS |
|              | Azimuth angle                              | 0.000000 | PASS |
|              | Rotation per timestep                      | 0.000000 | PASS |
|              | Wind speed at hub, magnitude               | 0.000000 | PASS |
|              | Wind angle at hub                          | 0.000000 | PASS |
|              | Yaw angle relative to forward              | 0.000000 | PASS |
|              | Yaw angle to reference direction           | 0.000000 | PASS |
|              | Yaw error                                  | 0.000000 | PASS |
|              | Torque about yaw axis                      | 0.000000 | PASS |
|              | Power (electrical)                         | 0.000000 | PASS |
|              | Torque                                     | 0.000000 | PASS |
|              | Torque on main shaft                       | 0.000000 | PASS |
|              | Torque diff. on main shaft                 | 0.000000 | PASS |
|              | RPM                                        | 0.000000 | PASS |
|              | Filtered RPM                               | 0.000000 | PASS |
|              | Electricity production                     | 0.000000 | PASS |
|              | Region                                     | 0.000000 | PASS |
|              | Demanded collective pitch angle            | 0.000000 | PASS |
|              | Cumulative demanded collective pitch angle | 0.000000 | PASS |
|              | Demanded collective pitch angle rate       | 0.000000 | PASS |



|                   |                                     |          |      |
|-------------------|-------------------------------------|----------|------|
|                   | Set point                           | 0.000000 | PASS |
|                   | RPM error                           | 0.000000 | PASS |
|                   | P term                              | 0.000000 | PASS |
|                   | I term                              | 0.000000 | PASS |
|                   | D term                              | 0.000000 | PASS |
|                   | Gain scheduling factor              | 0.000000 | PASS |
|                   | Root force (magnitude)              | 0.000000 | PASS |
|                   | Root moment (magnitude)             | 0.000000 | PASS |
|                   | Root moment (out-of-plane)          | 0.000000 | PASS |
|                   | Root moment (in-plane)              | 0.000000 | PASS |
|                   | Root moment about shaft             | 0.000000 | PASS |
|                   | Pitch angle                         | 0.000000 | PASS |
|                   | Tip deflection (out-of-plane)       | 0.000000 | PASS |
|                   | Tip deflection (in-plane)           | 0.000000 | PASS |
|                   | Root torque                         | 0.000000 | PASS |
|                   | Position (x)                        | 0.000000 | PASS |
|                   | Position (y)                        | 0.000000 | PASS |
|                   | Position (z)                        | 0.000000 | PASS |
|                   | Displacement (u)                    | 0.000000 | PASS |
|                   | Displacement (v)                    | 0.000000 | PASS |
|                   | Displacement (w)                    | 0.000000 | PASS |
|                   | Displacement magnitude              | 0.000000 | PASS |
|                   | Speed                               | 0.000000 | PASS |
|                   | Acceleration, magnitude             | 0.000000 | PASS |
|                   | Rotational displacement (ru)        | 0.000000 | PASS |
|                   | Rotational displacement (rv)        | 0.000000 | PASS |
|                   | Rotational displacement (rw)        | 0.000000 | PASS |
|                   | Rotational displacement magnitude   | 0.000000 | PASS |
|                   | Rotational speed                    | 0.000000 | PASS |
|                   | Rotational acceleration mag         | 0.000000 | PASS |
|                   | Displacement period                 | 0.000000 | PASS |
|                   | Displacement logarithmic decrement  | 0.000000 | PASS |
|                   | Displacement damping ratio          | 0.000000 | PASS |
| Curve exponential | Power (aero)                        | 0.000000 | PASS |
|                   | Torque (aero)                       | 0.000000 | PASS |
|                   | Thrust (aero)                       | 0.000000 | PASS |
|                   | RPM                                 | 0.000000 | PASS |
|                   | TSR                                 | 0.000000 | PASS |
|                   | Representative demanded pitch angle | 0.000000 | PASS |
|                   | Power coef. (CP)                    | 0.000000 | PASS |
|                   | Thrust coef. (CT)                   | 0.000000 | PASS |
|                   | Torque coef. (CQ)                   | 0.000000 | PASS |

|  |                                            |          |      |
|--|--------------------------------------------|----------|------|
|  | Tip speed                                  | 0.000000 | PASS |
|  | 1P (one revolution)                        | 0.000000 | PASS |
|  | nP (blade passing)                         | 0.000000 | PASS |
|  | Azimuth angle                              | 0.000000 | PASS |
|  | Rotation per timestep                      | 0.000000 | PASS |
|  | Wind speed at hub, magnitude               | 0.000000 | PASS |
|  | Wind angle at hub                          | 0.000000 | PASS |
|  | Yaw angle relative to forward              | 0.000000 | PASS |
|  | Yaw angle to reference direction           | 0.000000 | PASS |
|  | Yaw error                                  | 0.000000 | PASS |
|  | Torque about yaw axis                      | 0.000000 | PASS |
|  | Power (electrical)                         | 0.000000 | PASS |
|  | Torque                                     | 0.000000 | PASS |
|  | Torque on main shaft                       | 0.000000 | PASS |
|  | Torque diff. on main shaft                 | 0.000000 | PASS |
|  | RPM                                        | 0.000000 | PASS |
|  | Filtered RPM                               | 0.000000 | PASS |
|  | Electricity production                     | 0.000000 | PASS |
|  | Region                                     | 0.000000 | PASS |
|  | Demanded collective pitch angle            | 0.000000 | PASS |
|  | Cumulative demanded collective pitch angle | 0.000000 | PASS |
|  | Demanded collective pitch angle rate       | 0.000000 | PASS |
|  | Set point                                  | 0.000000 | PASS |
|  | RPM error                                  | 0.000000 | PASS |
|  | P term                                     | 0.000000 | PASS |
|  | I term                                     | 0.000000 | PASS |
|  | D term                                     | 0.000000 | PASS |
|  | Gain scheduling factor                     | 0.000000 | PASS |
|  | Root force (magnitude)                     | 0.000000 | PASS |
|  | Root moment (magnitude)                    | 0.000000 | PASS |
|  | Root moment (out-of-plane)                 | 0.000000 | PASS |
|  | Root moment (in-plane)                     | 0.000000 | PASS |
|  | Root moment about shaft                    | 0.000000 | PASS |
|  | Pitch angle                                | 0.000000 | PASS |
|  | Tip deflection (out-of-plane)              | 0.000000 | PASS |
|  | Tip deflection (in-plane)                  | 0.000000 | PASS |
|  | Root torque                                | 0.000000 | PASS |
|  | Position (x)                               | 0.000000 | PASS |
|  | Position (y)                               | 0.000000 | PASS |
|  | Position (z)                               | 0.000000 | PASS |
|  | Displacement (u)                           | 0.000000 | PASS |
|  | Displacement (v)                           | 0.000000 | PASS |

|                 |                                     |          |      |
|-----------------|-------------------------------------|----------|------|
|                 | Displacement (w)                    | 0.000000 | PASS |
|                 | Displacement magnitude              | 0.000000 | PASS |
|                 | Speed                               | 0.000000 | PASS |
|                 | Acceleration, magnitude             | 0.000000 | PASS |
|                 | Rotational displacement (ru)        | 0.000000 | PASS |
|                 | Rotational displacement (rv)        | 0.000000 | PASS |
|                 | Rotational displacement (rw)        | 0.000000 | PASS |
|                 | Rotational displacement magnitude   | 0.000000 | PASS |
|                 | Rotational speed                    | 0.000000 | PASS |
|                 | Rotational acceleration mag         | 0.000000 | PASS |
|                 | Displacement period                 | 0.000000 | PASS |
|                 | Displacement logarithmic decrement  | 0.000000 | PASS |
|                 | Displacement damping ratio          | 0.000000 | PASS |
| Scheme duration | Power (aero)                        | 0.000000 | PASS |
|                 | Torque (aero)                       | 0.000000 | PASS |
|                 | Thrust (aero)                       | 0.000000 | PASS |
|                 | RPM                                 | 0.000000 | PASS |
|                 | TSR                                 | 0.000000 | PASS |
|                 | Representative demanded pitch angle | 0.000000 | PASS |
|                 | Power coef. (CP)                    | 0.000000 | PASS |
|                 | Thrust coef. (CT)                   | 0.000000 | PASS |
|                 | Torque coef. (CQ)                   | 0.000000 | PASS |
|                 | Tip speed                           | 0.000000 | PASS |
|                 | 1P (one revolution)                 | 0.000000 | PASS |
|                 | nP (blade passing)                  | 0.000000 | PASS |
|                 | Azimuth angle                       | 0.000000 | PASS |
|                 | Rotation per timestep               | 0.000000 | PASS |
|                 | Wind speed at hub, magnitude        | 0.000000 | PASS |
|                 | Wind angle at hub                   | 0.000000 | PASS |
|                 | Yaw angle relative to forward       | 0.000000 | PASS |
|                 | Yaw angle to reference direction    | 0.000000 | PASS |
|                 | Yaw error                           | 0.000000 | PASS |
|                 | Torque about yaw axis               | 0.000000 | PASS |
|                 | Power (electrical)                  | 0.000000 | PASS |
|                 | Torque                              | 0.000000 | PASS |
|                 | Torque on main shaft                | 0.000000 | PASS |
|                 | Torque diff. on main shaft          | 0.000000 | PASS |
|                 | RPM                                 | 0.000000 | PASS |
|                 | Filtered RPM                        | 0.000000 | PASS |
|                 | Electricity production              | 0.000000 | PASS |
|                 | Region                              | 0.000000 | PASS |
|                 | Demanded collective pitch angle     | 0.000000 | PASS |

|      |                                            |          |      |
|------|--------------------------------------------|----------|------|
|      | Cumulative demanded collective pitch angle | 0.000000 | PASS |
|      | Demanded collective pitch angle rate       | 0.000000 | PASS |
|      | Set point                                  | 0.000000 | PASS |
|      | RPM error                                  | 0.000000 | PASS |
|      | P term                                     | 0.000000 | PASS |
|      | I term                                     | 0.000000 | PASS |
|      | D term                                     | 0.000000 | PASS |
|      | Gain scheduling factor                     | 0.000000 | PASS |
|      | Root force (magnitude)                     | 0.000000 | PASS |
|      | Root moment (magnitude)                    | 0.000000 | PASS |
|      | Root moment (out-of-plane)                 | 0.000000 | PASS |
|      | Root moment (in-plane)                     | 0.000000 | PASS |
|      | Root moment about shaft                    | 0.000000 | PASS |
|      | Pitch angle                                | 0.000000 | PASS |
|      | Tip deflection (out-of-plane)              | 0.000000 | PASS |
|      | Tip deflection (in-plane)                  | 0.000000 | PASS |
|      | Root torque                                | 0.000000 | PASS |
|      | Position (x)                               | 0.000000 | PASS |
|      | Position (y)                               | 0.000000 | PASS |
|      | Position (z)                               | 0.000000 | PASS |
|      | Displacement (u)                           | 0.000000 | PASS |
|      | Displacement (v)                           | 0.000000 | PASS |
|      | Displacement (w)                           | 0.000000 | PASS |
|      | Displacement magnitude                     | 0.000000 | PASS |
|      | Speed                                      | 0.000000 | PASS |
|      | Acceleration, magnitude                    | 0.000000 | PASS |
|      | Rotational displacement (ru)               | 0.000000 | PASS |
|      | Rotational displacement (rv)               | 0.000000 | PASS |
|      | Rotational displacement (rw)               | 0.000000 | PASS |
|      | Rotational displacement magnitude          | 0.000000 | PASS |
|      | Rotational speed                           | 0.000000 | PASS |
|      | Rotational acceleration mag                | 0.000000 | PASS |
|      | Displacement period                        | 0.000000 | PASS |
|      | Displacement logarithmic decrement         | 0.000000 | PASS |
|      | Displacement damping ratio                 | 0.000000 | PASS |
| None | Power (aero)                               | 0.000000 | PASS |
|      | Torque (aero)                              | 0.000000 | PASS |
|      | Thrust (aero)                              | 0.000000 | PASS |
|      | RPM                                        | 0.000000 | PASS |
|      | TSR                                        | 0.000000 | PASS |
|      | Representative demanded pitch angle        | 0.000000 | PASS |
|      | Power coef. (CP)                           | 0.000000 | PASS |

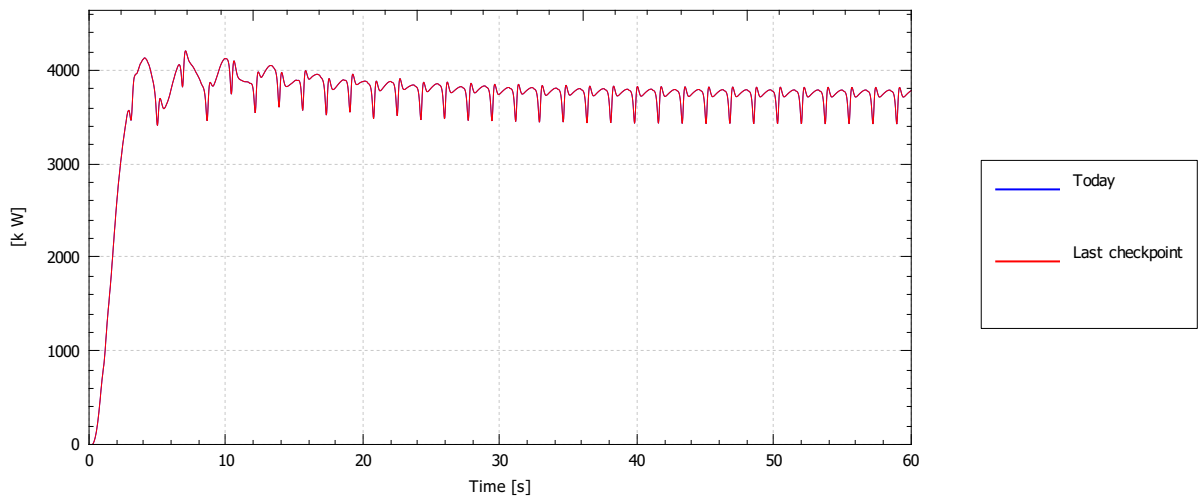
|  |                                            |          |      |
|--|--------------------------------------------|----------|------|
|  | Thrust coef. (CT)                          | 0.000000 | PASS |
|  | Torque coef. (CQ)                          | 0.000000 | PASS |
|  | Tip speed                                  | 0.000000 | PASS |
|  | 1P (one revolution)                        | 0.000000 | PASS |
|  | nP (blade passing)                         | 0.000000 | PASS |
|  | Azimuth angle                              | 0.000000 | PASS |
|  | Rotation per timestep                      | 0.000000 | PASS |
|  | Wind speed at hub, magnitude               | 0.000000 | PASS |
|  | Wind angle at hub                          | 0.000000 | PASS |
|  | Yaw angle relative to forward              | 0.000000 | PASS |
|  | Yaw angle to reference direction           | 0.000000 | PASS |
|  | Yaw error                                  | 0.000000 | PASS |
|  | Torque about yaw axis                      | 0.000000 | PASS |
|  | Power (electrical)                         | 0.000000 | PASS |
|  | Torque                                     | 0.000000 | PASS |
|  | Torque on main shaft                       | 0.000000 | PASS |
|  | Torque diff. on main shaft                 | 0.000000 | PASS |
|  | RPM                                        | 0.000000 | PASS |
|  | Filtered RPM                               | 0.000000 | PASS |
|  | Electricity production                     | 0.000000 | PASS |
|  | Region                                     | 0.000000 | PASS |
|  | Demanded collective pitch angle            | 0.000000 | PASS |
|  | Cumulative demanded collective pitch angle | 0.000000 | PASS |
|  | Demanded collective pitch angle rate       | 0.000000 | PASS |
|  | Set point                                  | 0.000000 | PASS |
|  | RPM error                                  | 0.000000 | PASS |
|  | P term                                     | 0.000000 | PASS |
|  | I term                                     | 0.000000 | PASS |
|  | D term                                     | 0.000000 | PASS |
|  | Gain scheduling factor                     | 0.000000 | PASS |
|  | Root force (magnitude)                     | 0.000000 | PASS |
|  | Root moment (magnitude)                    | 0.000000 | PASS |
|  | Root moment (out-of-plane)                 | 0.000000 | PASS |
|  | Root moment (in-plane)                     | 0.000000 | PASS |
|  | Root moment about shaft                    | 0.000000 | PASS |
|  | Pitch angle                                | 0.000000 | PASS |
|  | Tip deflection (out-of-plane)              | 0.000000 | PASS |
|  | Tip deflection (in-plane)                  | 0.000000 | PASS |
|  | Root torque                                | 0.000000 | PASS |
|  | Position (x)                               | 0.000000 | PASS |
|  | Position (y)                               | 0.000000 | PASS |
|  | Position (z)                               | 0.000000 | PASS |

|  |                                    |          |      |
|--|------------------------------------|----------|------|
|  | Displacement (u)                   | 0.000000 | PASS |
|  | Displacement (v)                   | 0.000000 | PASS |
|  | Displacement (w)                   | 0.000000 | PASS |
|  | Displacement magnitude             | 0.000000 | PASS |
|  | Speed                              | 0.000000 | PASS |
|  | Acceleration, magnitude            | 0.000000 | PASS |
|  | Rotational displacement (ru)       | 0.000000 | PASS |
|  | Rotational displacement (rv)       | 0.000000 | PASS |
|  | Rotational displacement (rw)       | 0.000000 | PASS |
|  | Rotational displacement magnitude  | 0.000000 | PASS |
|  | Rotational speed                   | 0.000000 | PASS |
|  | Rotational acceleration mag        | 0.000000 | PASS |
|  | Displacement period                | 0.000000 | PASS |
|  | Displacement logarithmic decrement | 0.000000 | PASS |
|  | Displacement damping ratio         | 0.000000 | PASS |

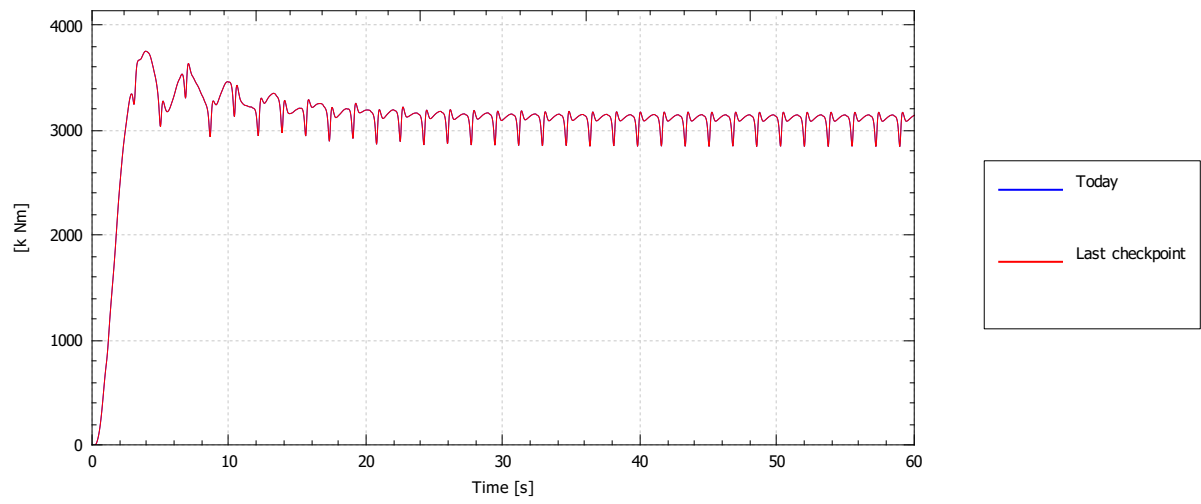
**Load case: Default**

## Rotor

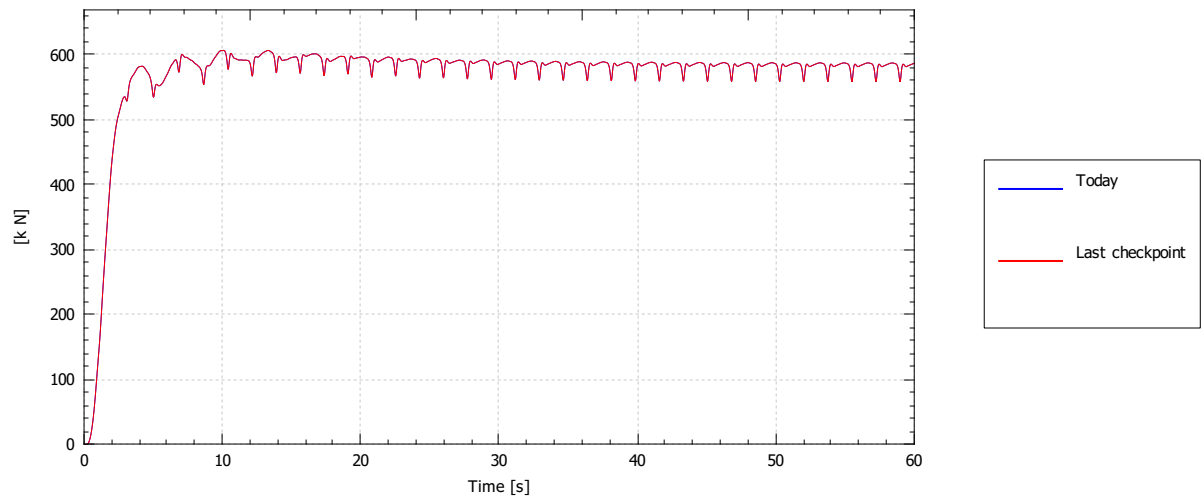
Power (aero)



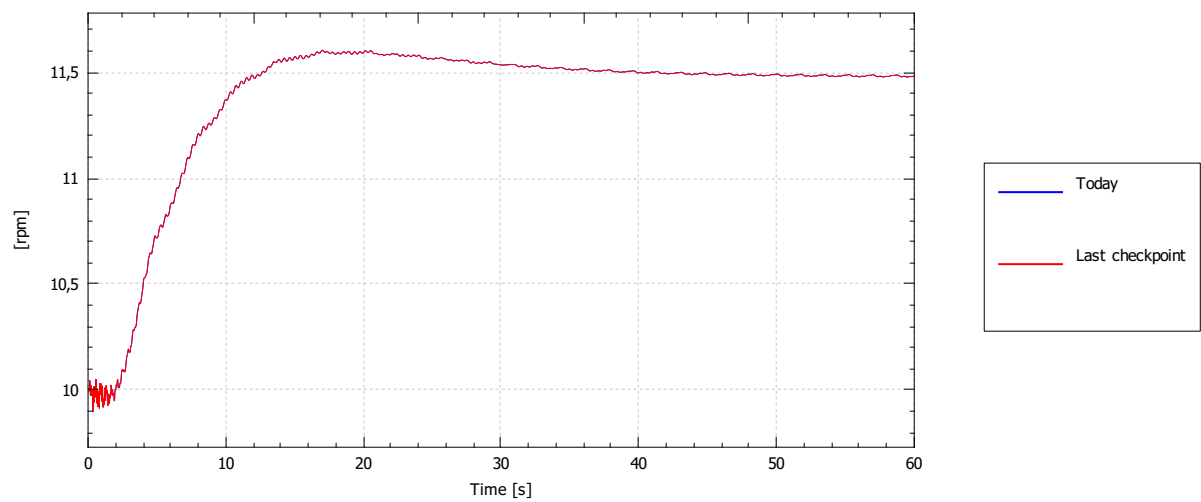
Torque (aero)



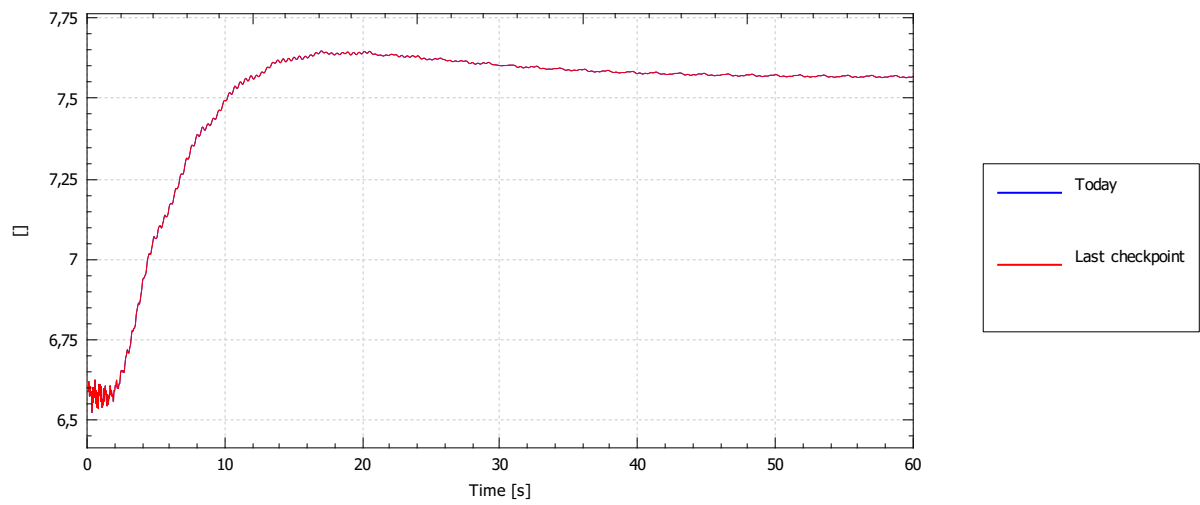
Thrust (aero)



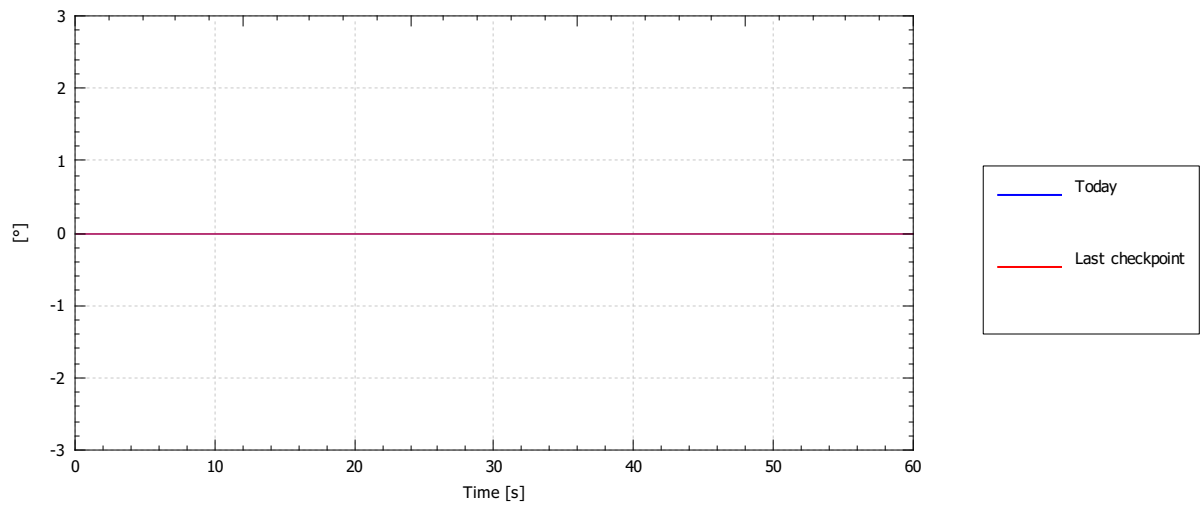
RPM



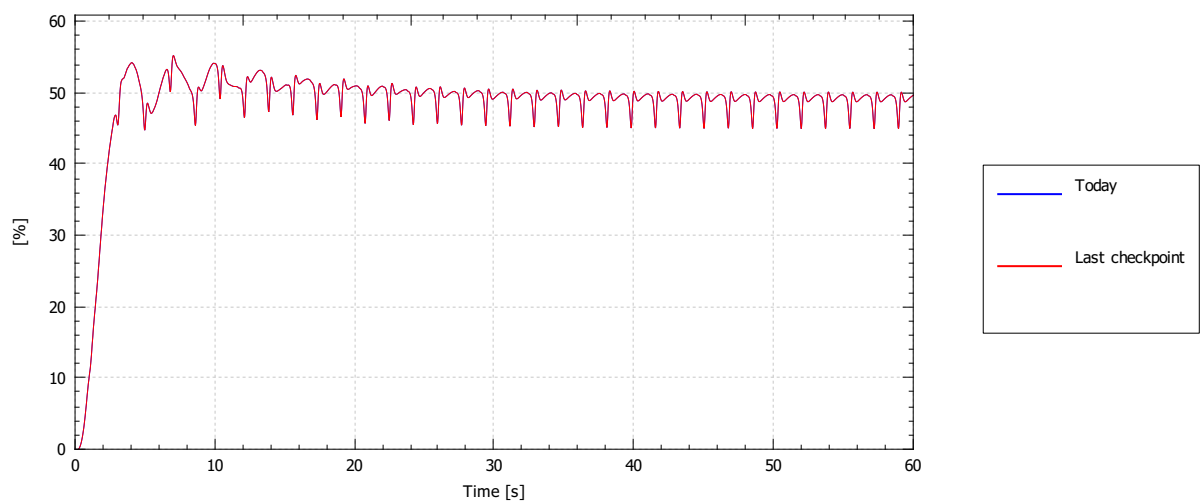
### TSR



### Representative demanded pitch angle

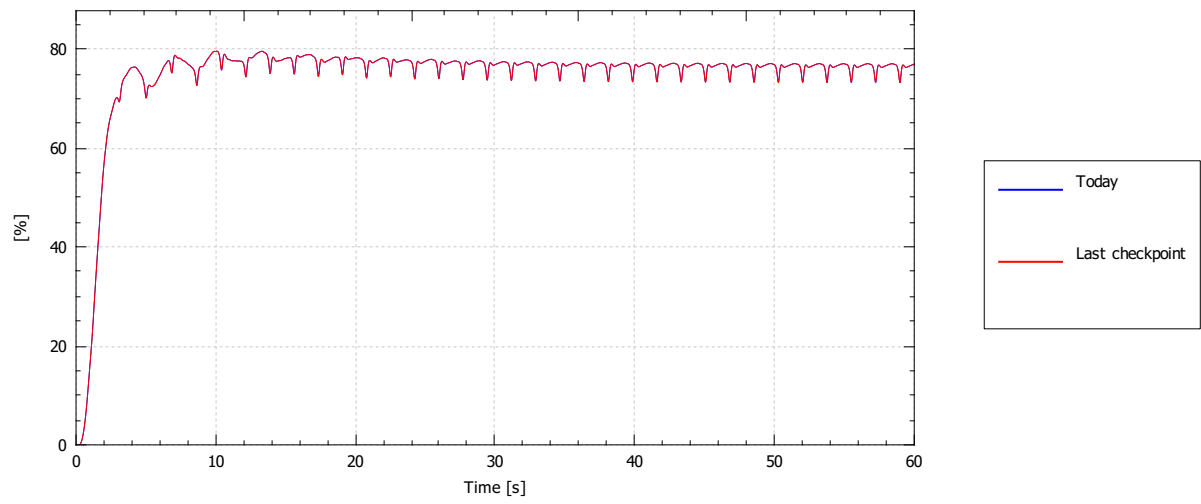


### Power coef. (CP)

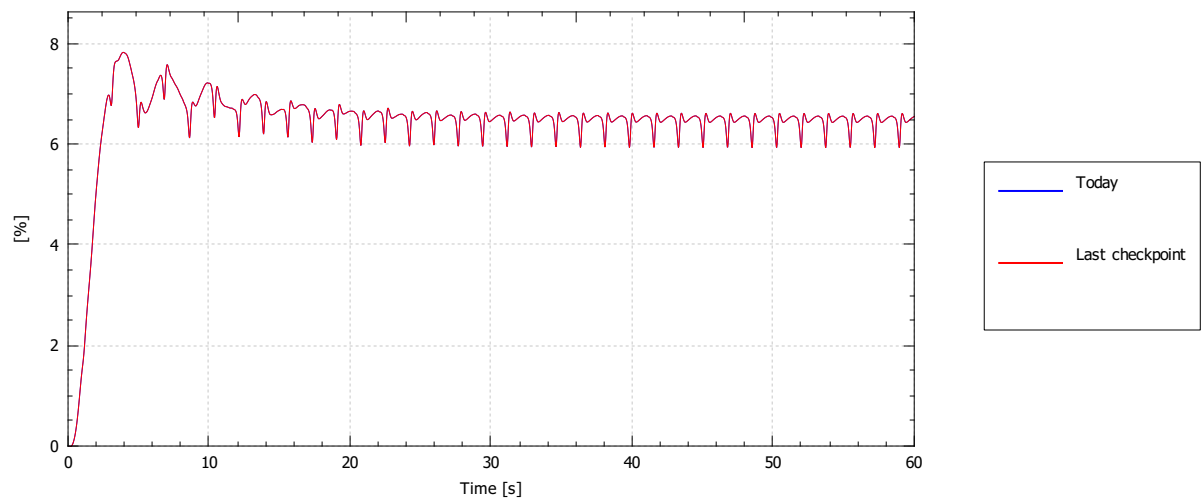




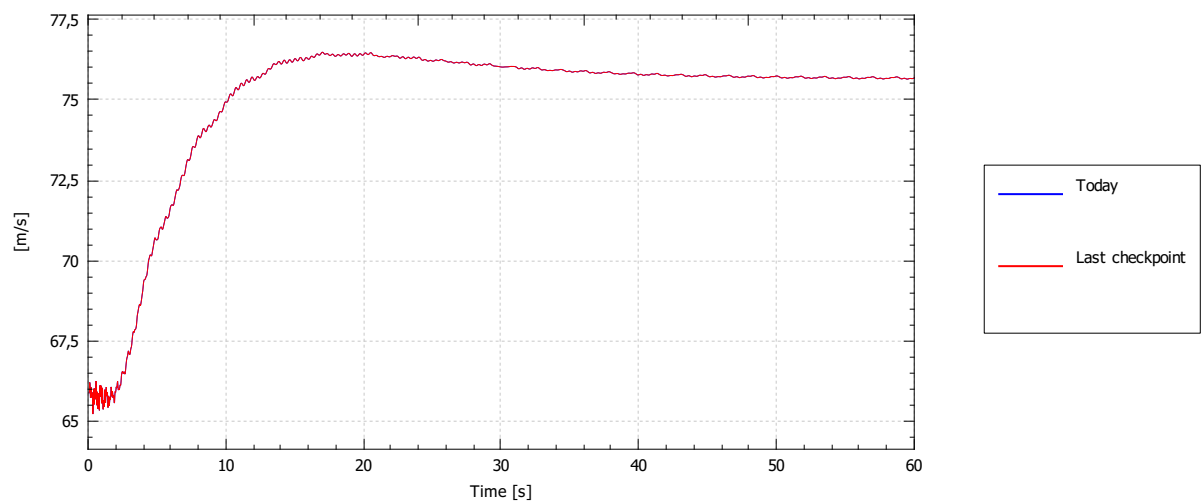
Thrust coef. (CT)



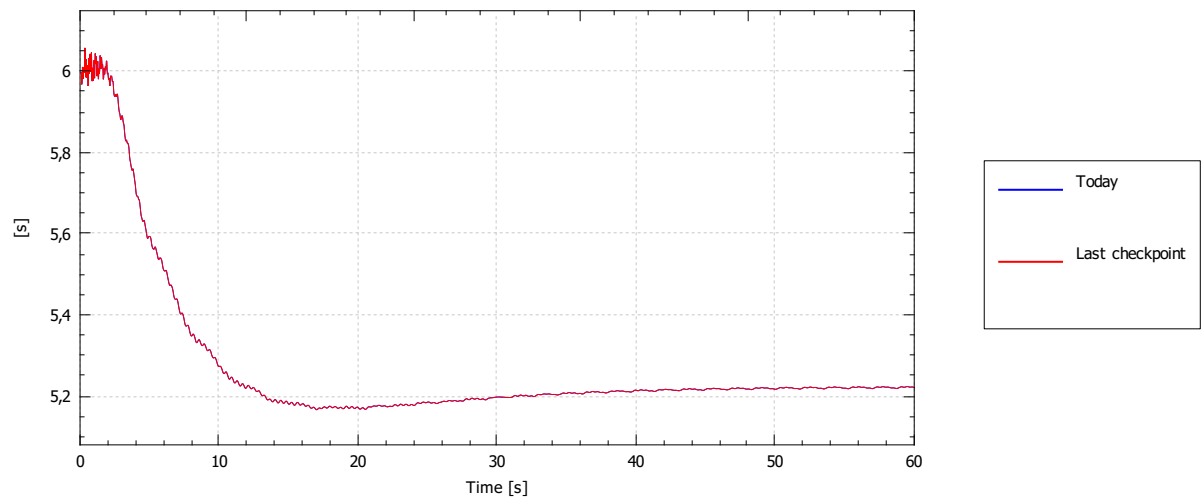
Torque coef. (CQ)



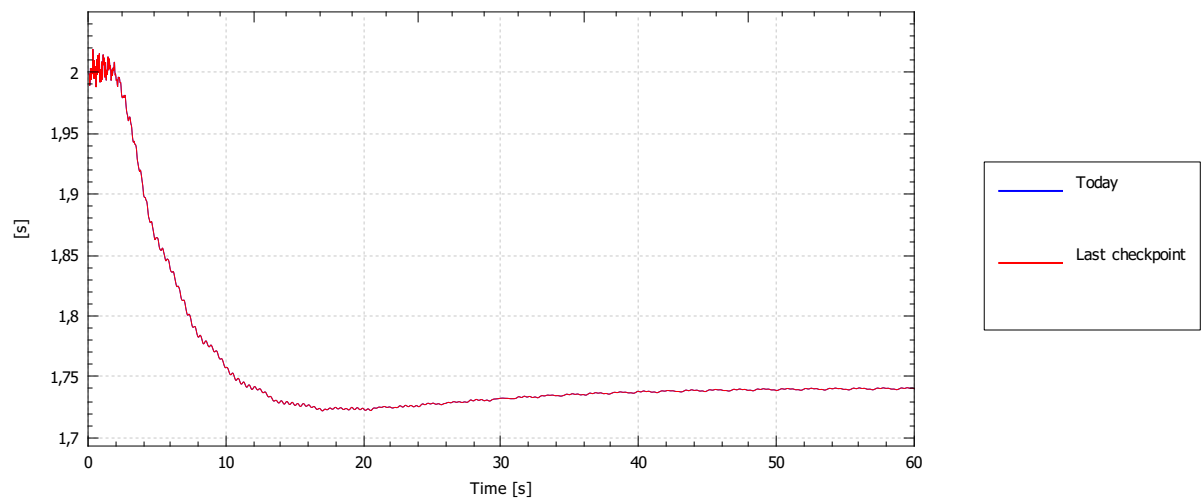
Tip speed



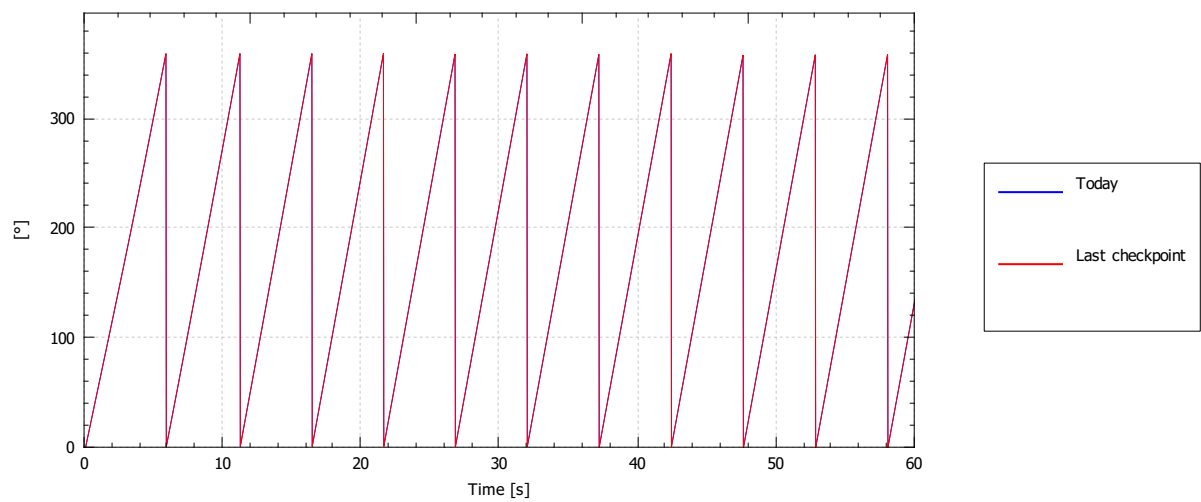
1P (one revolution)



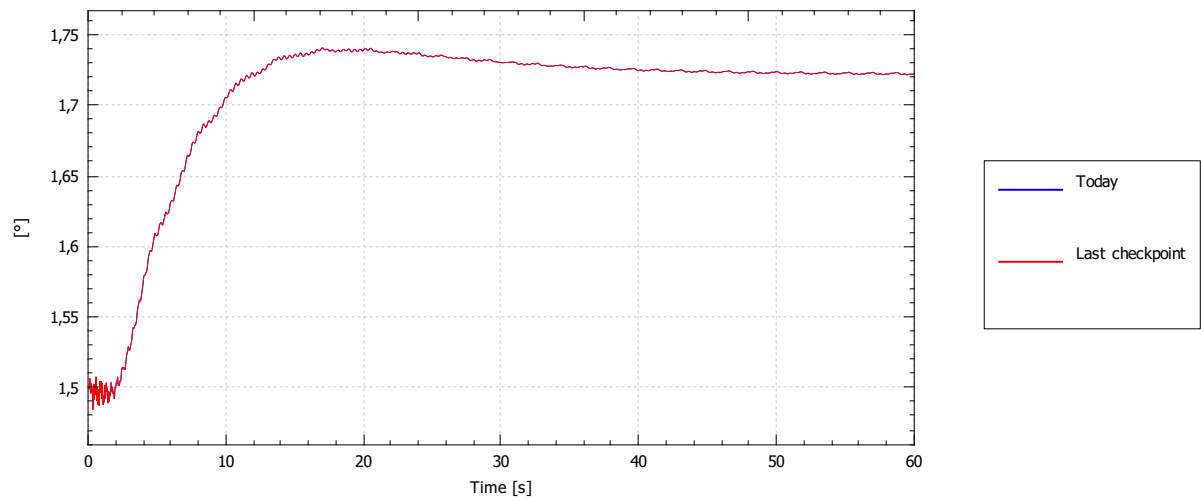
nP (blade passing)



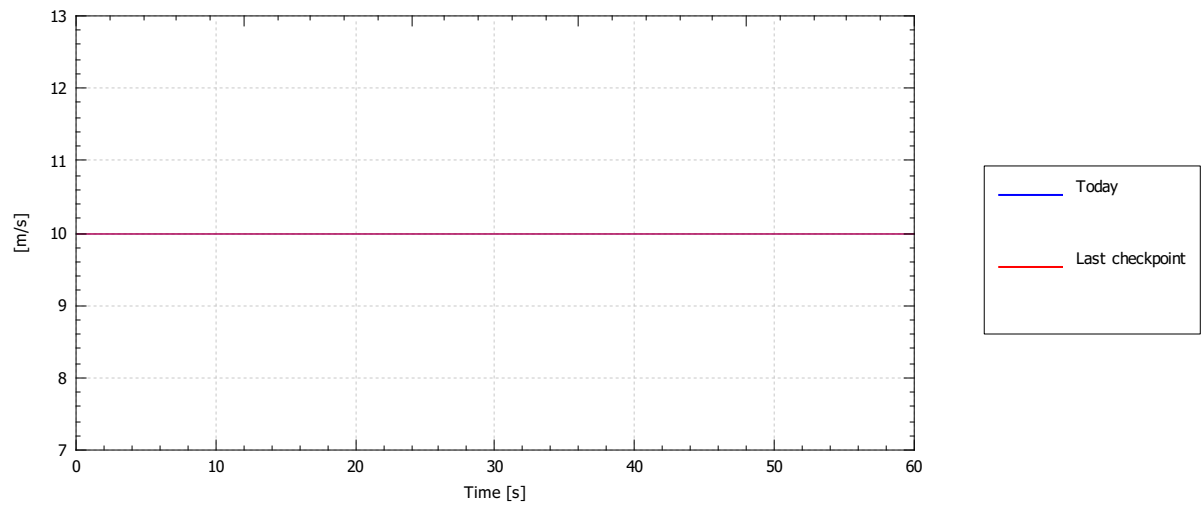
Azimuth angle



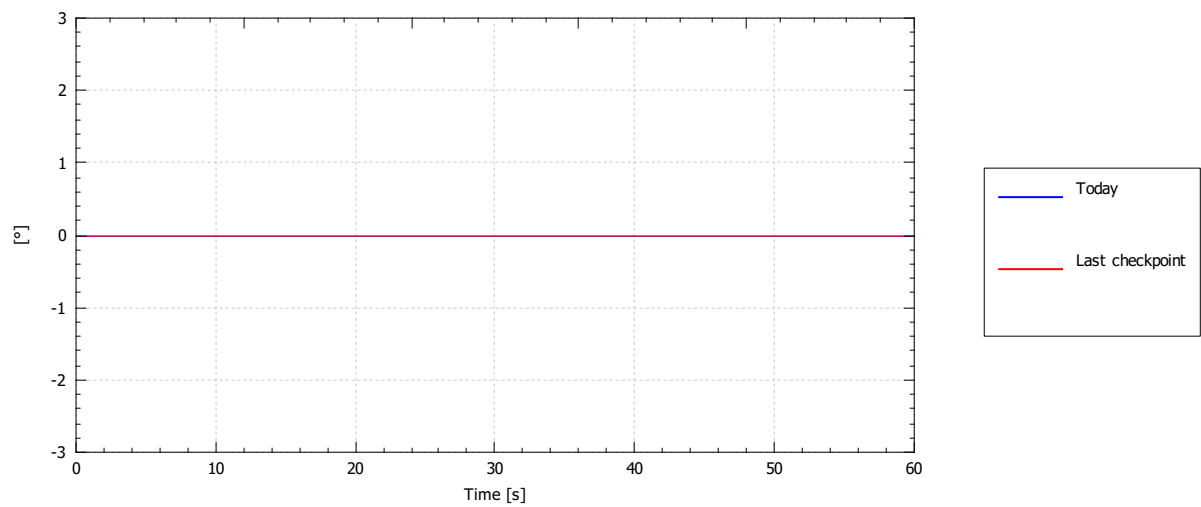
Rotation per timestep



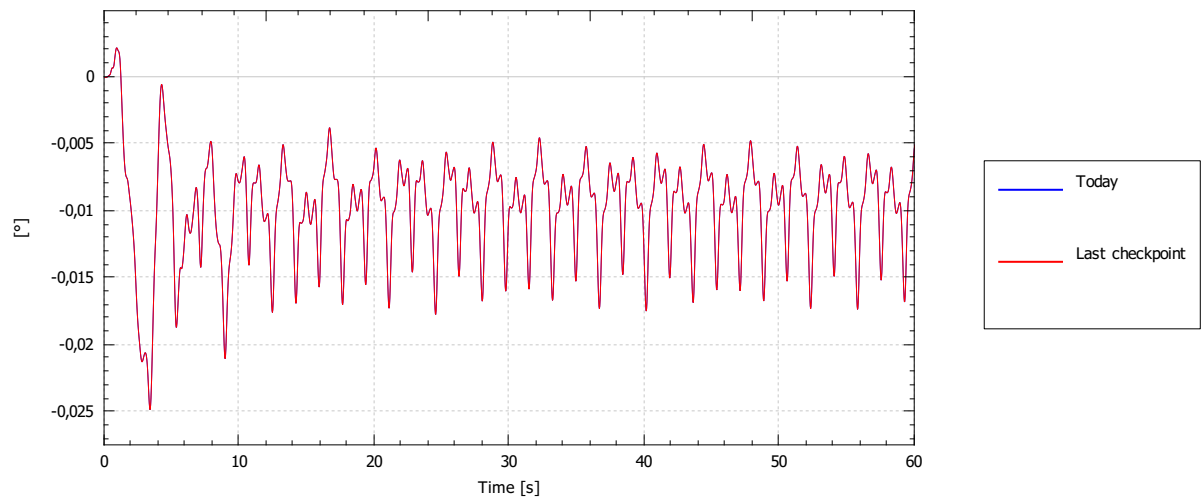
Wind speed at hub, magnitude



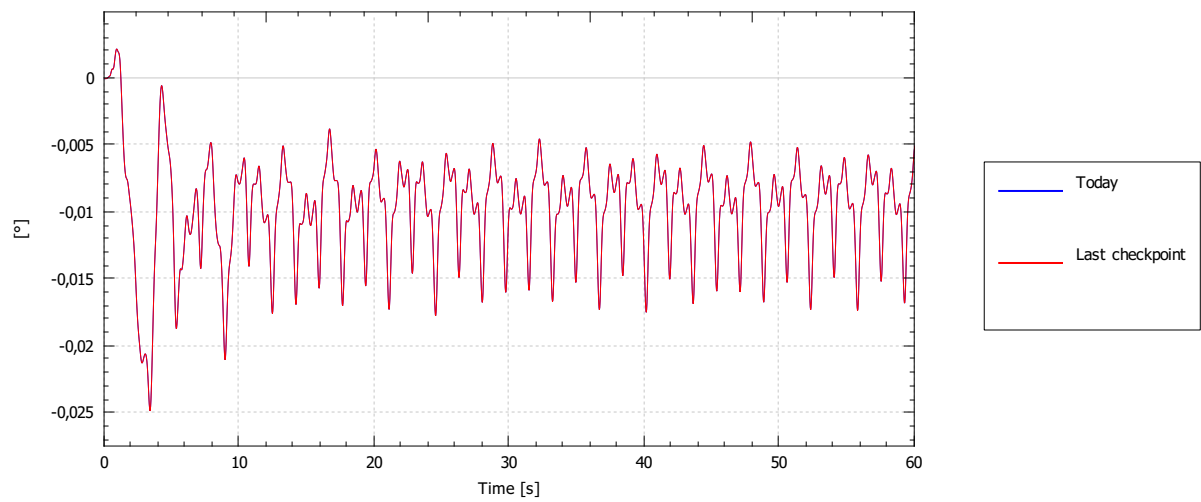
Wind angle at hub



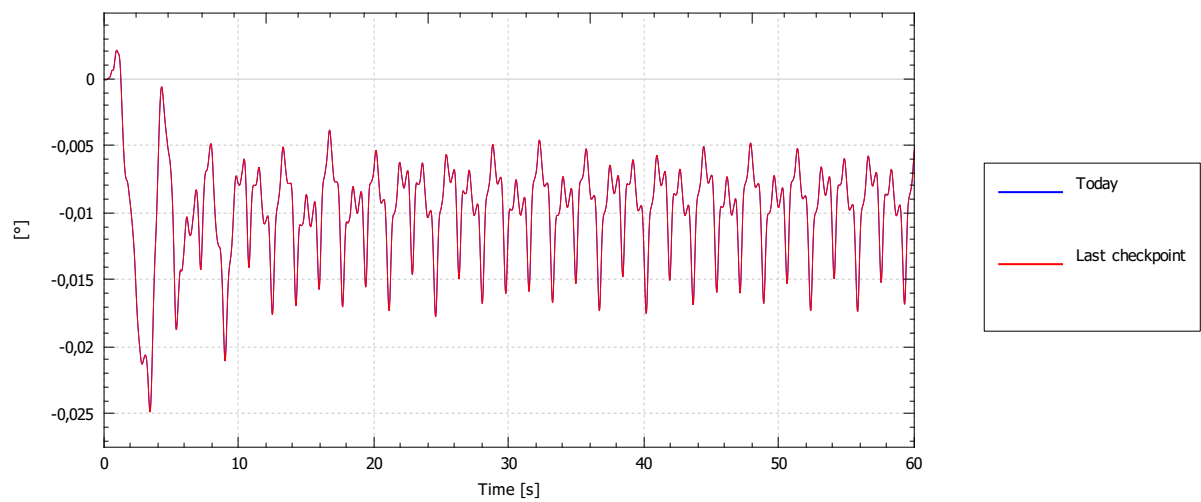
Yaw angle relative to forward



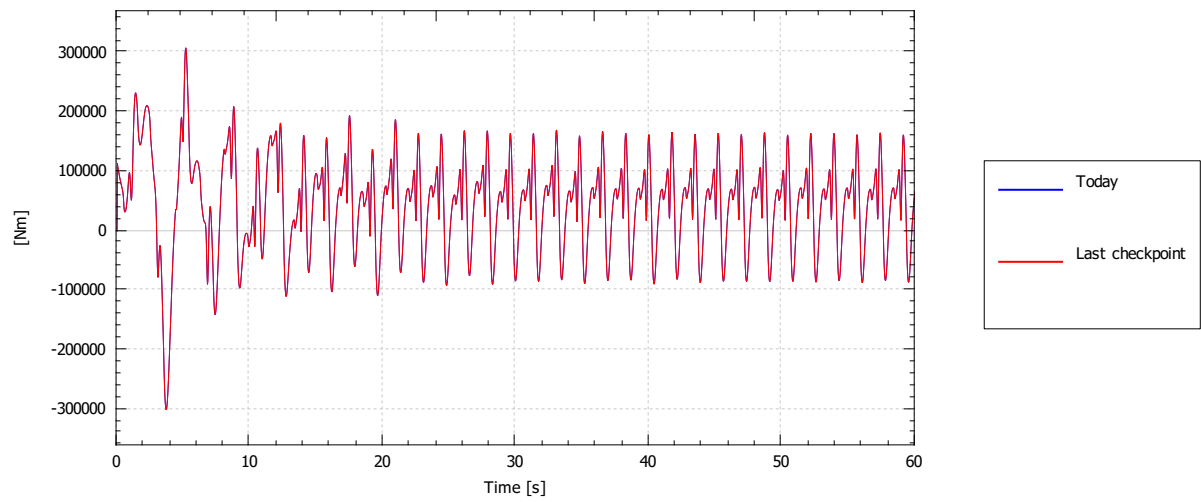
Yaw angle to reference direction



Yaw error

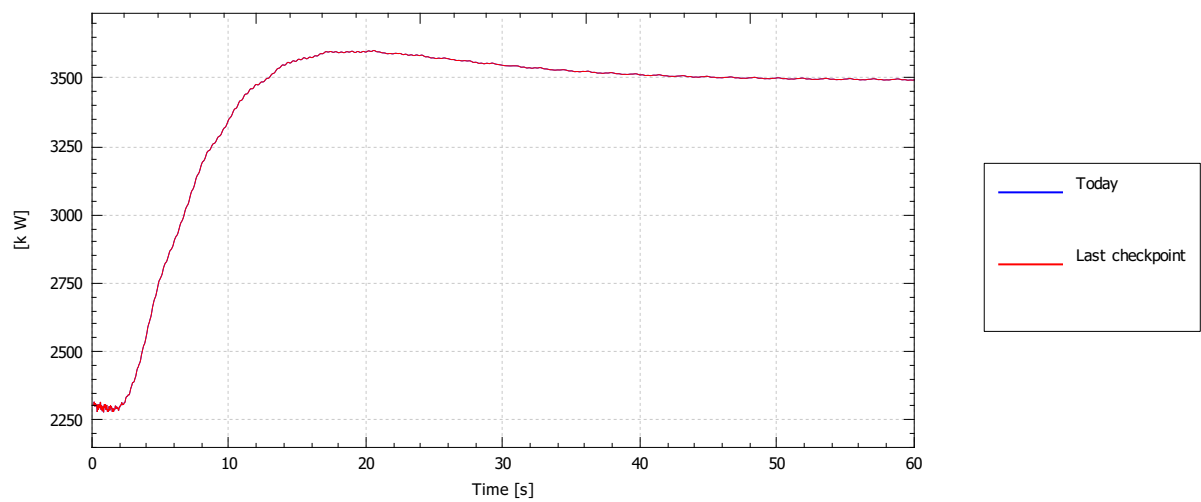


Torque about yaw axis

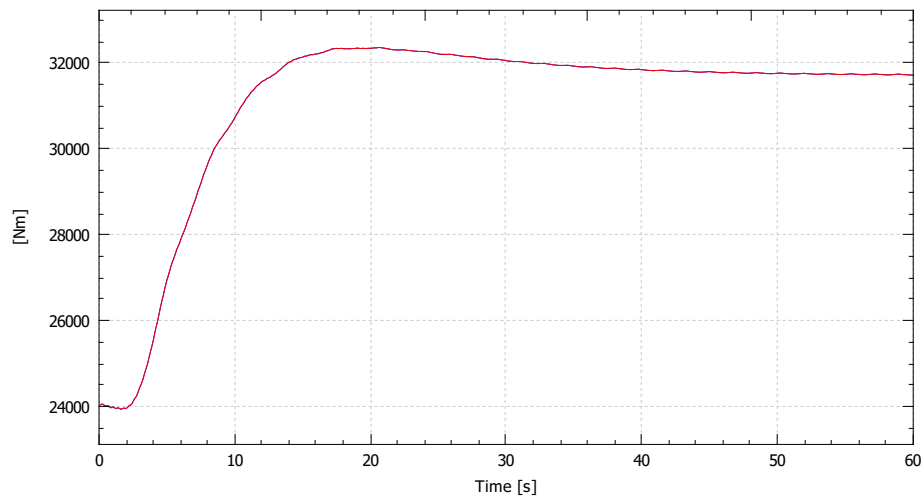


## Generator

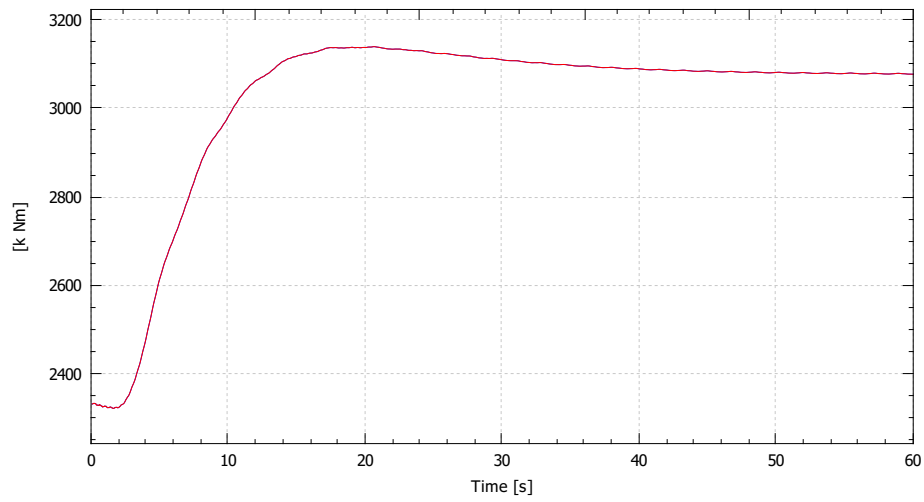
Power (electrical)



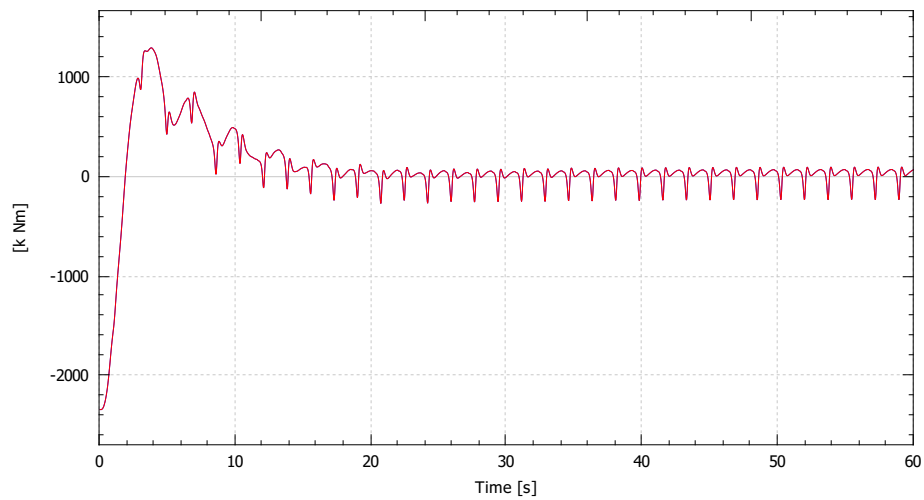
Torque



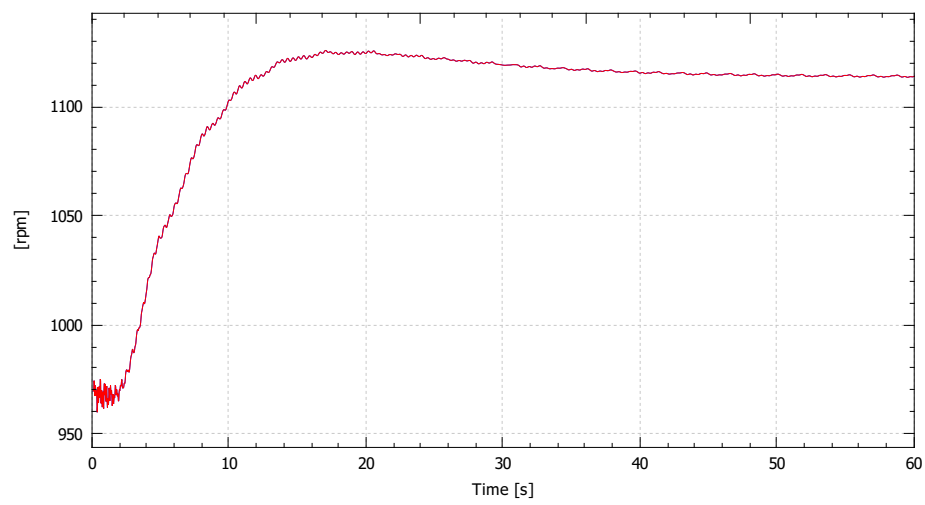
Torque on main shaft



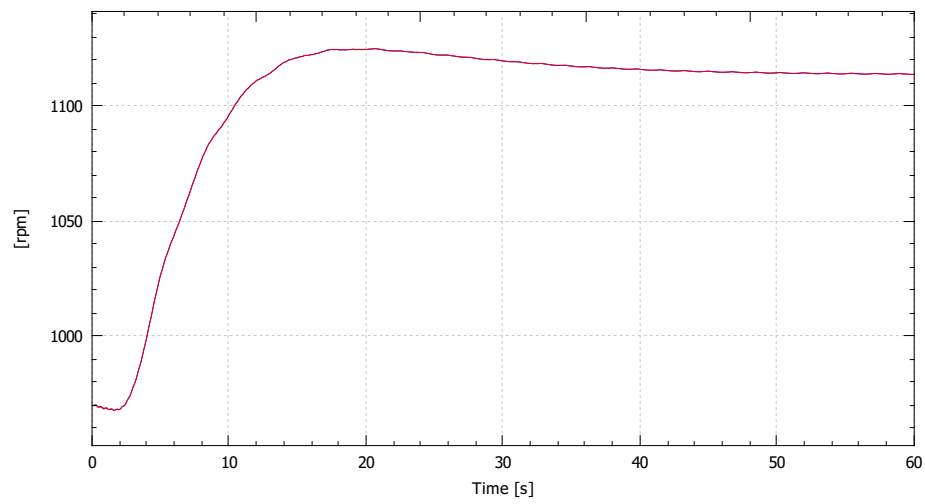
Torque diff. on main shaft



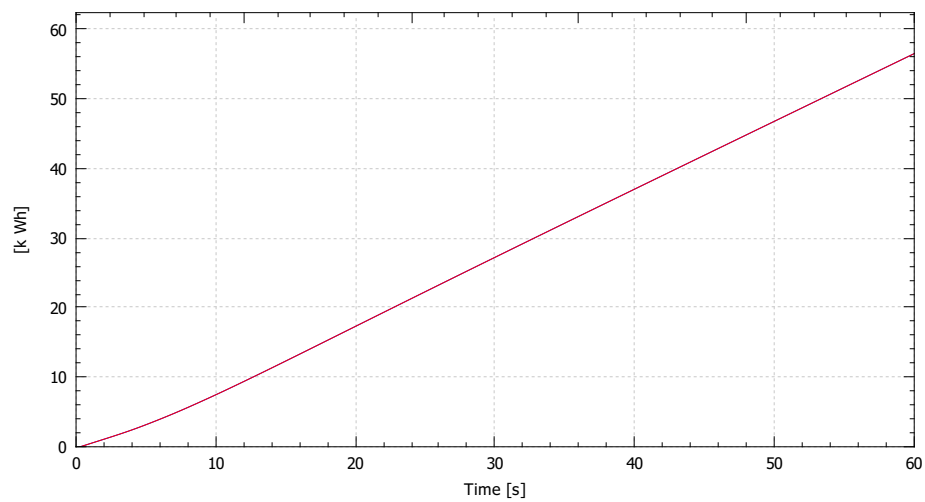
### RPM

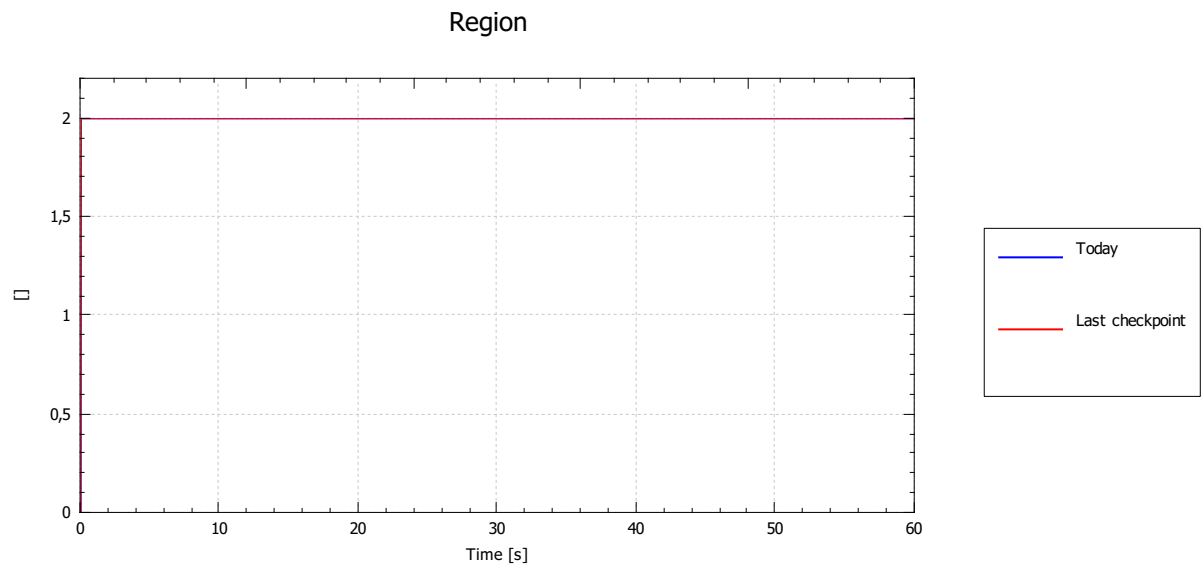


### Filtered RPM

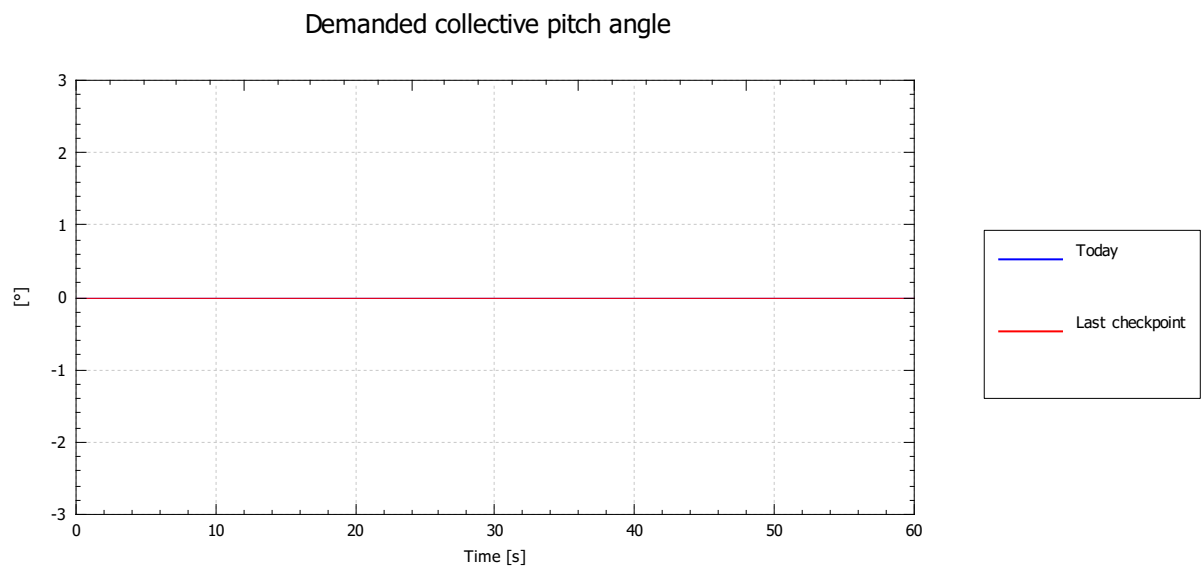


### Electricity production



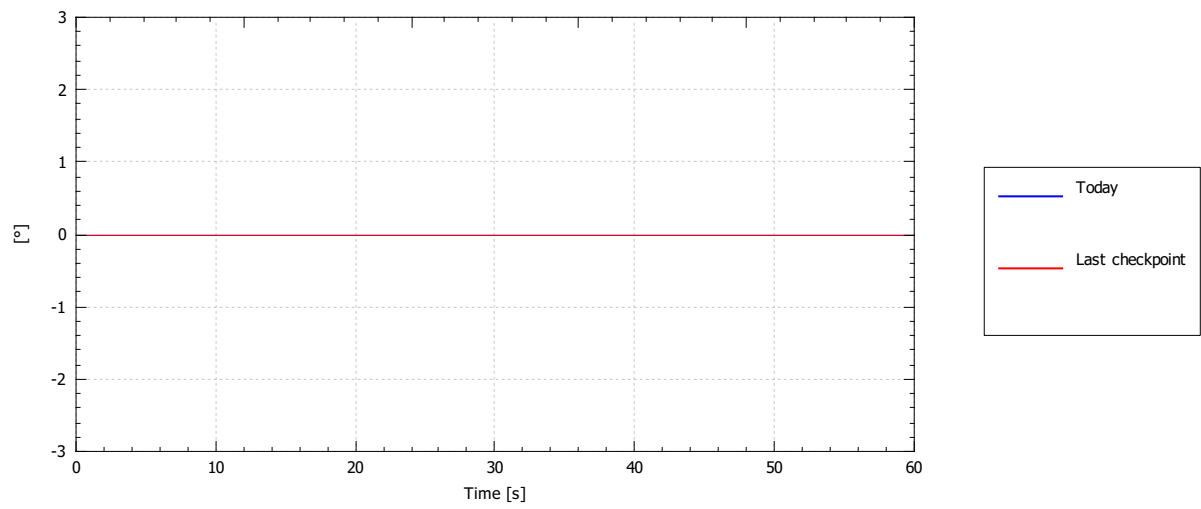


### **Demanded pitch controller**

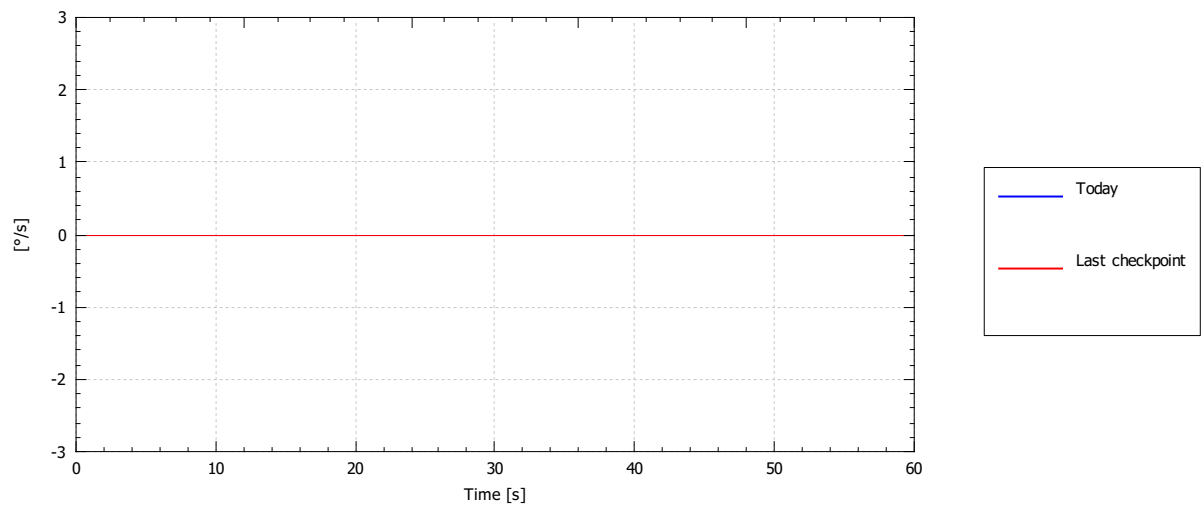




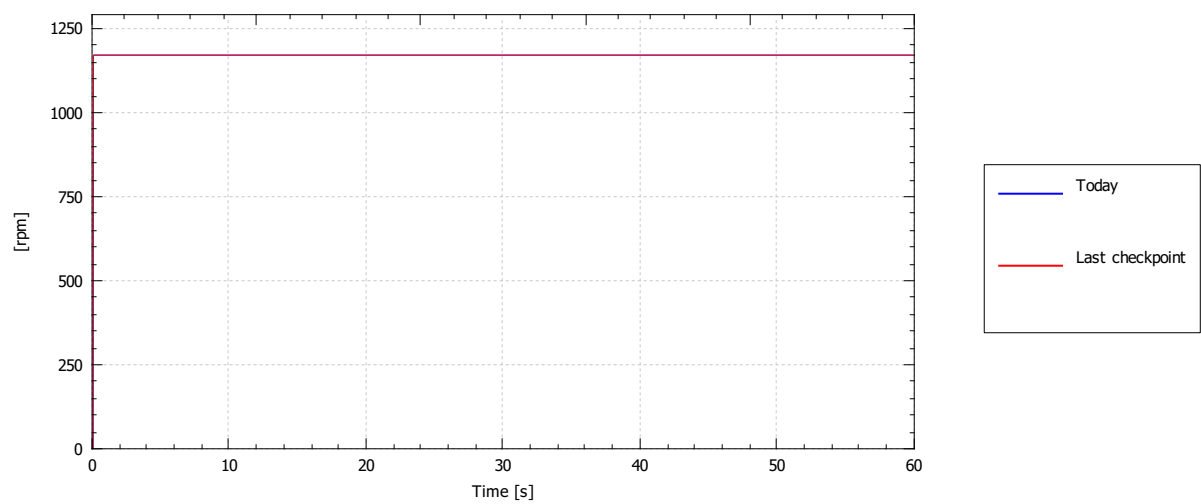
Cumulative demanded collective pitch angle



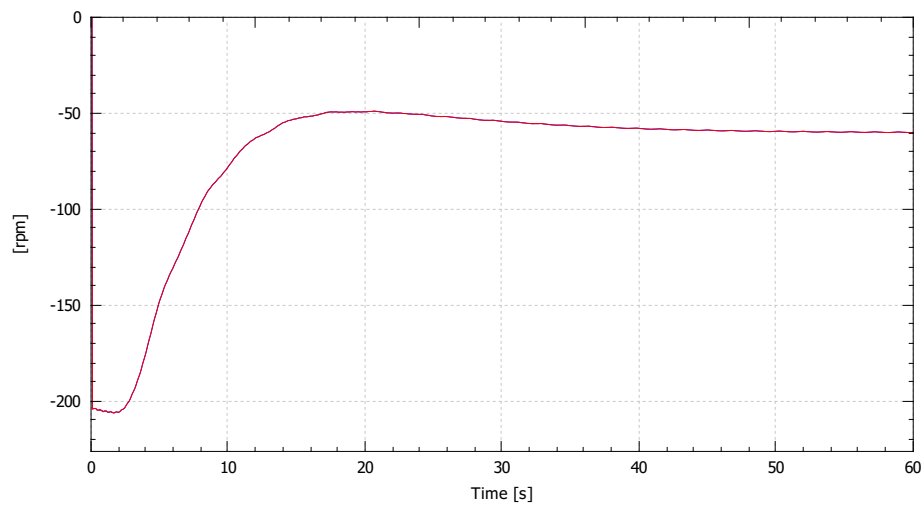
Demanded collective pitch angle rate



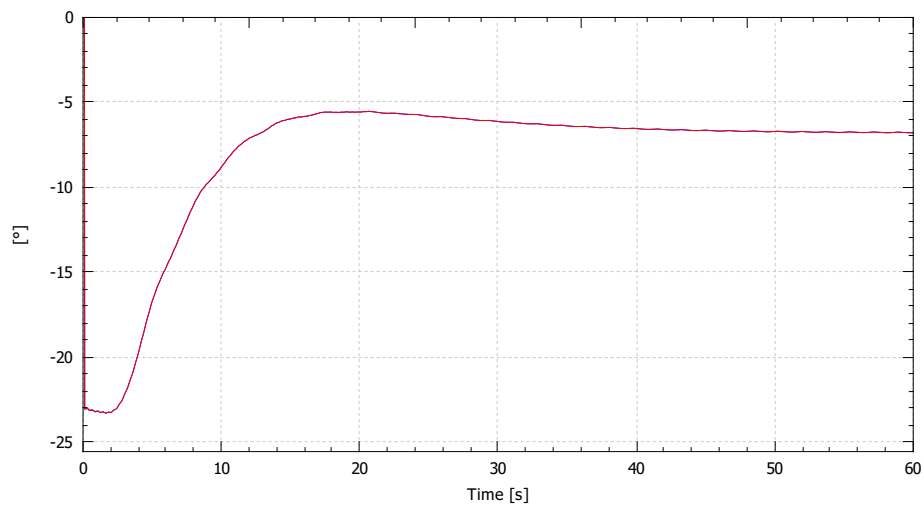
Set point



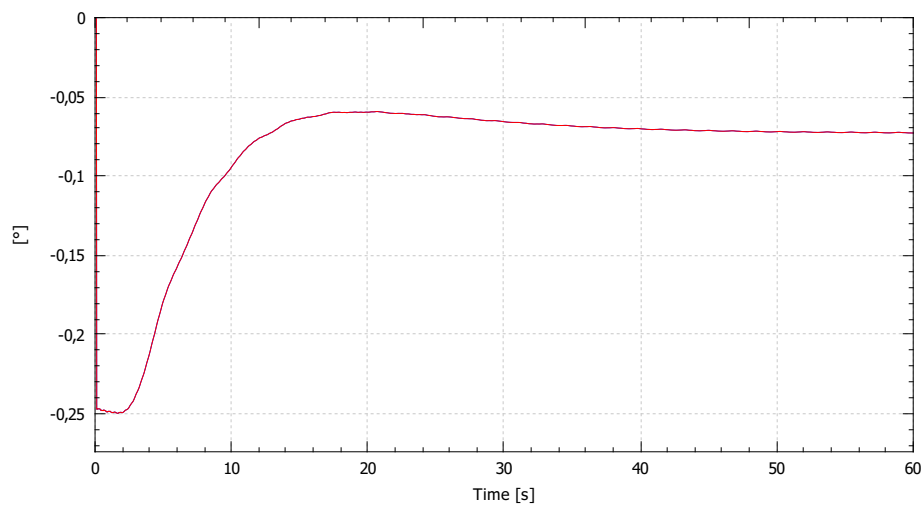
RPM error



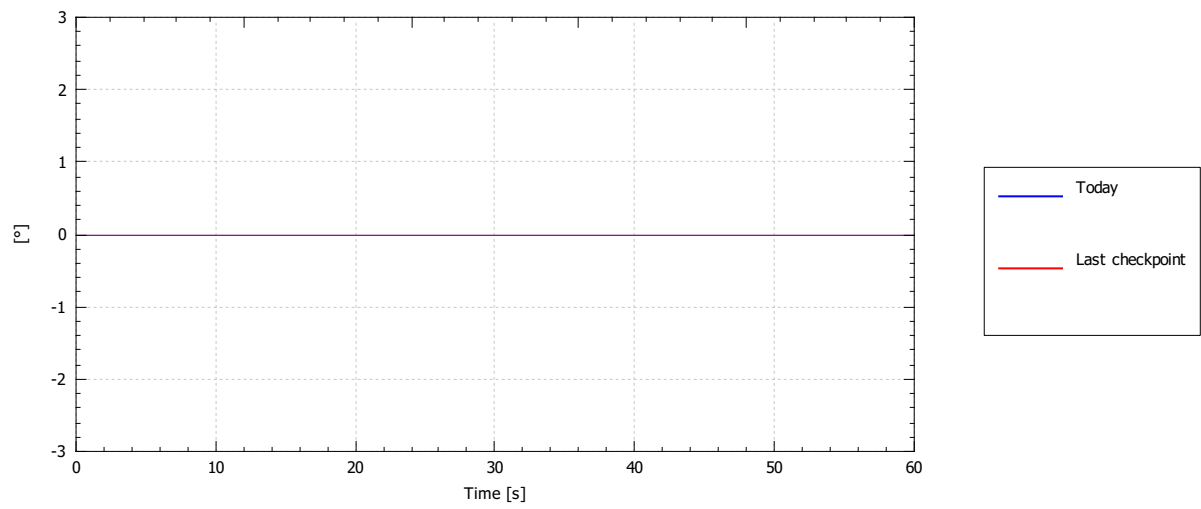
P term



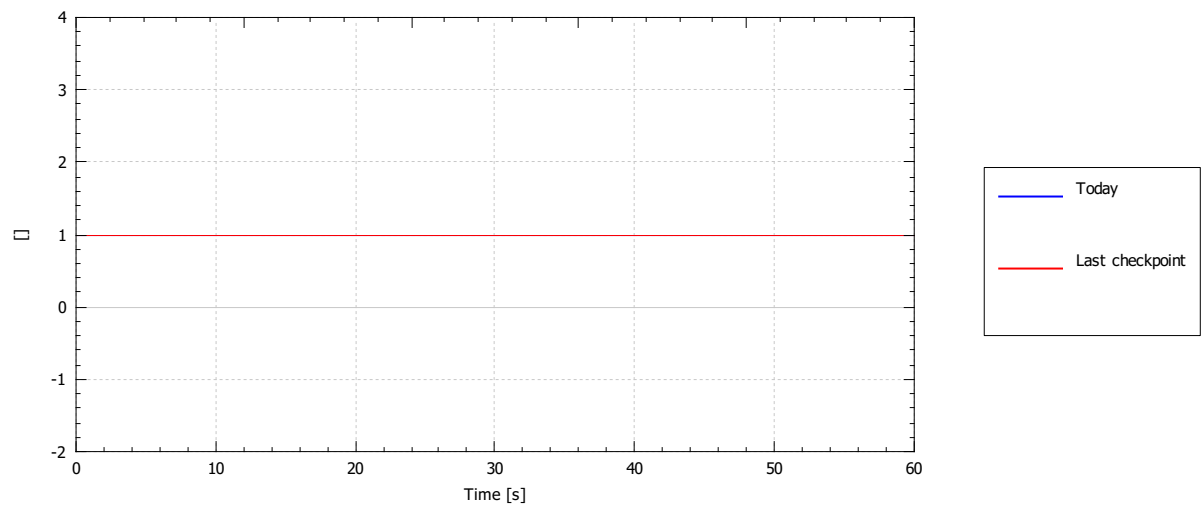
I term



D term

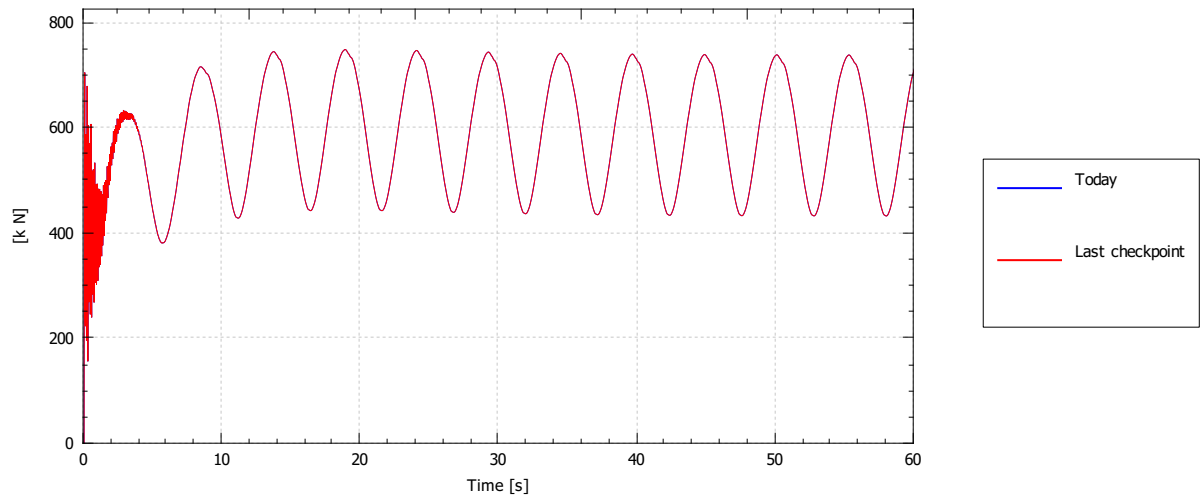


Gain scheduling factor

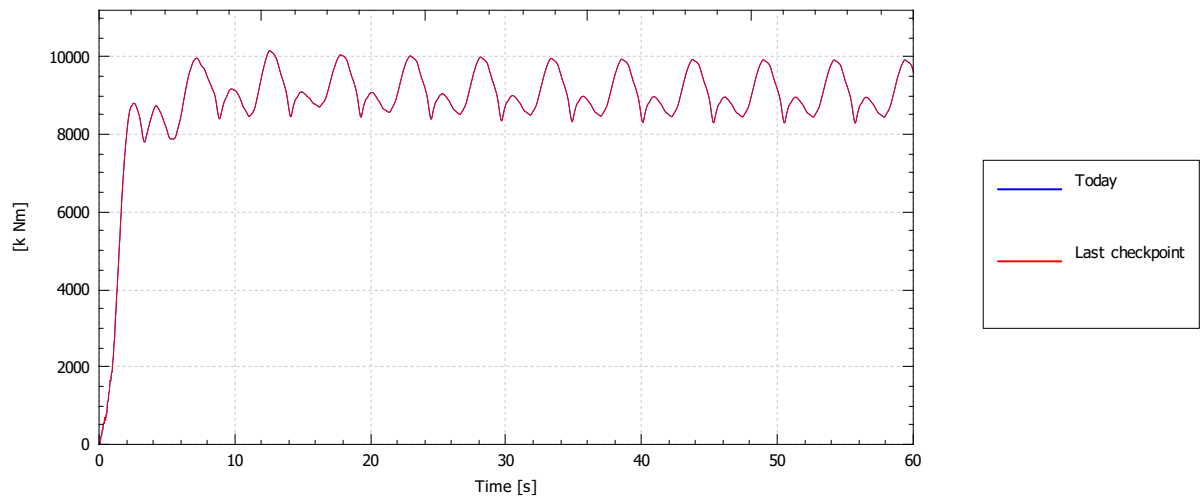


Blade [Time] [Blade 1]

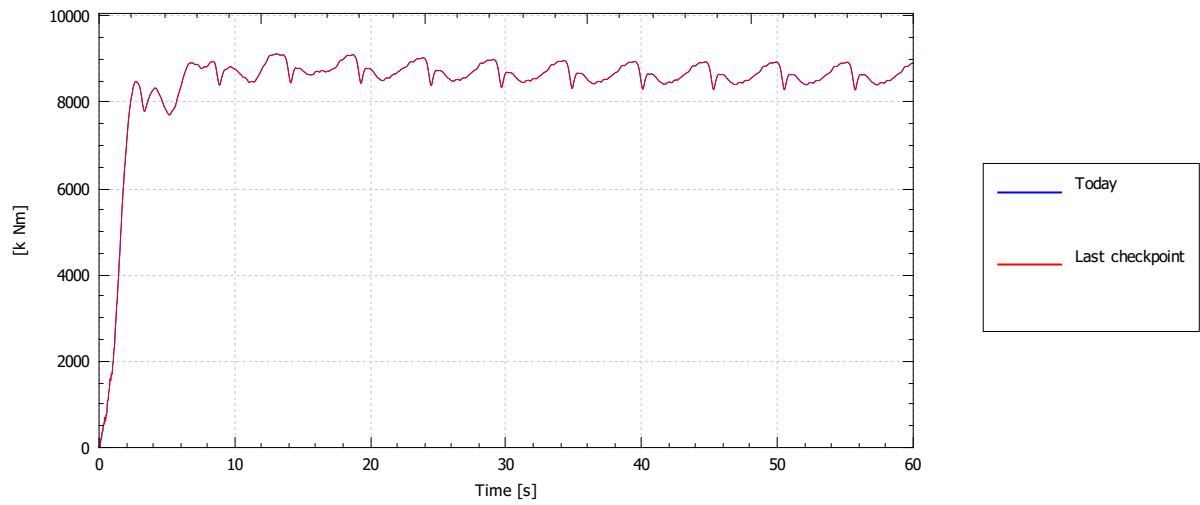
Root force (magnitude)



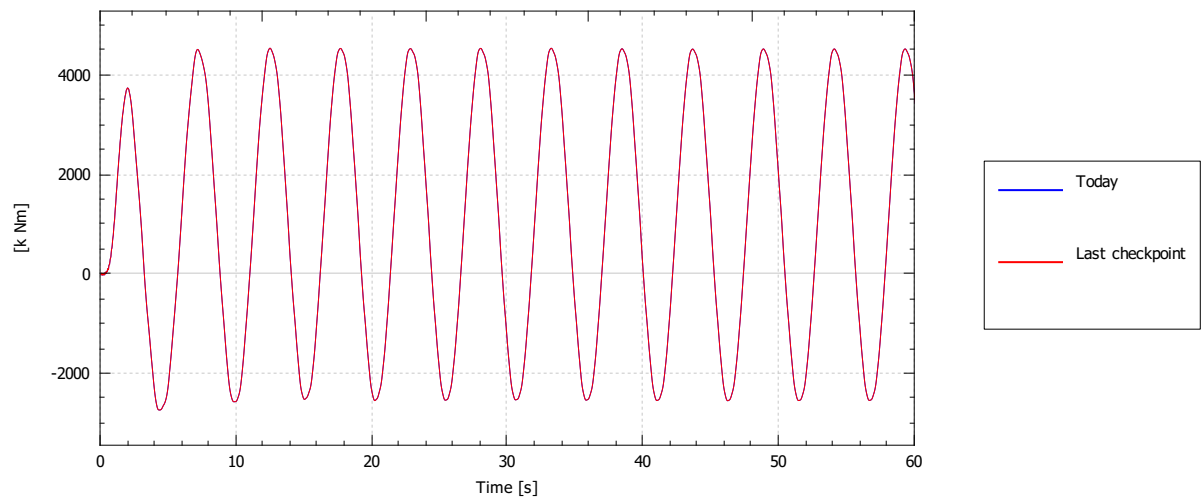
Root moment (magnitude)



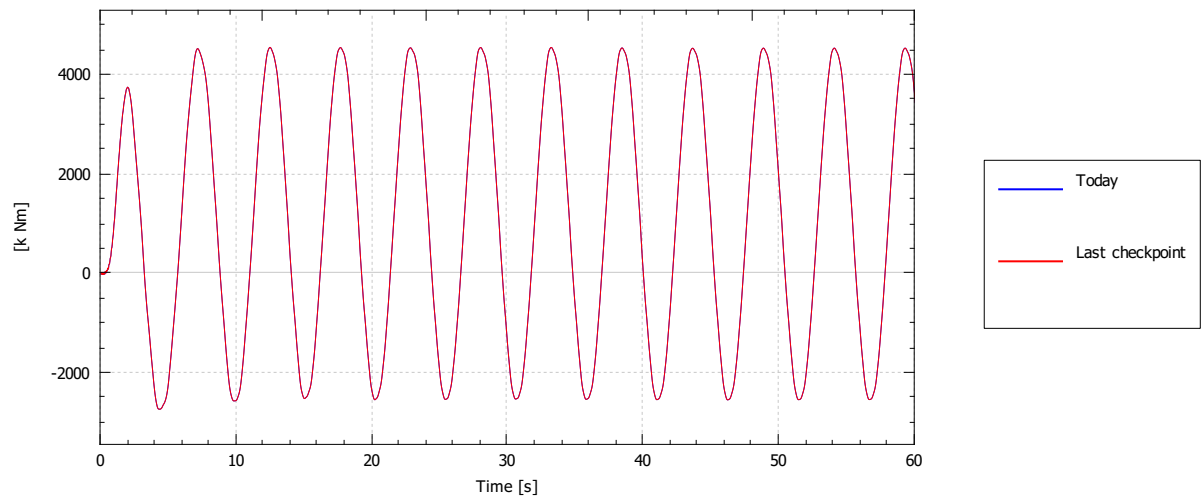
Root moment (out-of-plane)



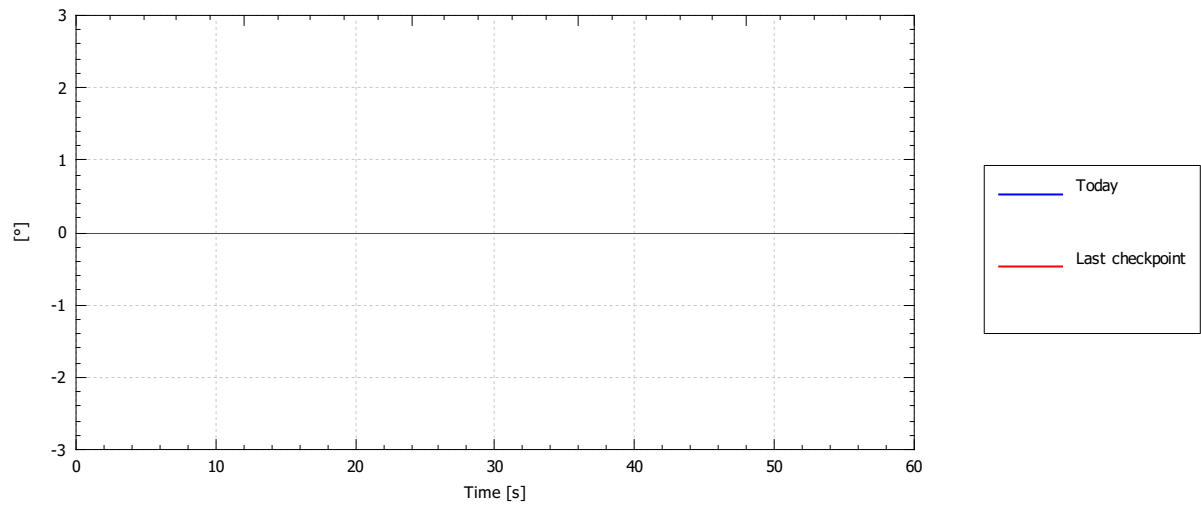
Root moment (in-plane)



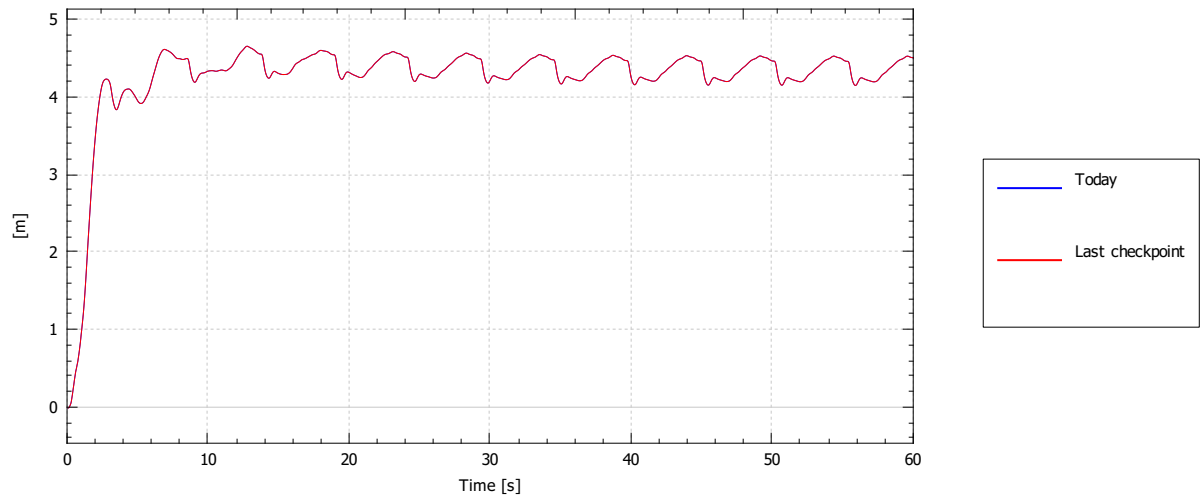
Root moment about shaft



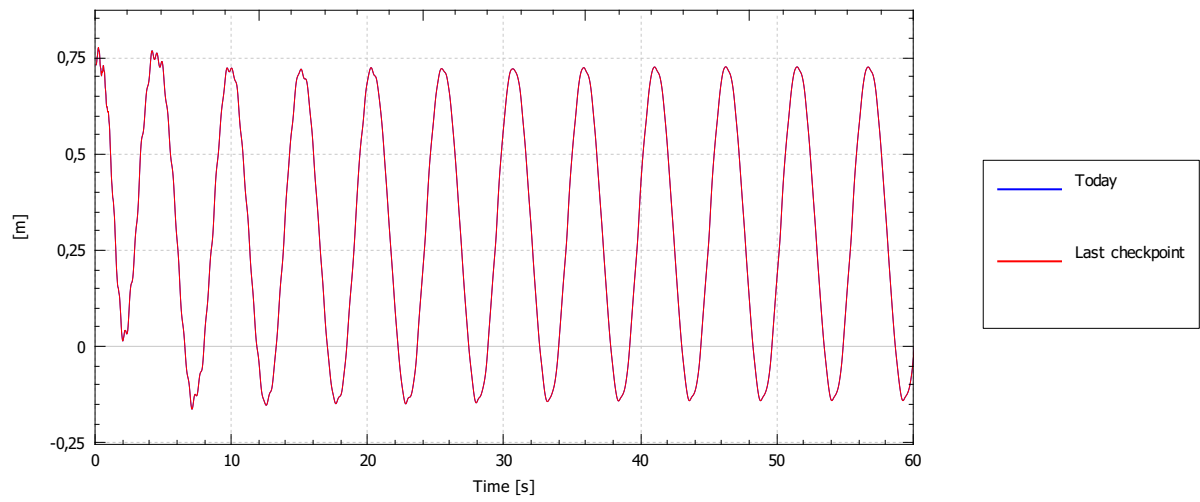
Pitch angle



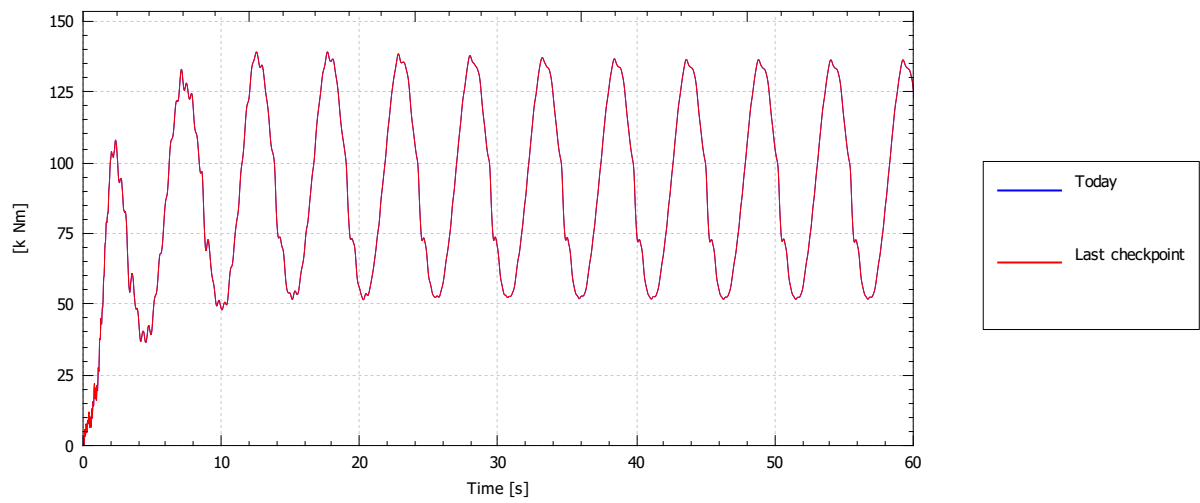
Tip deflection (out-of-plane)

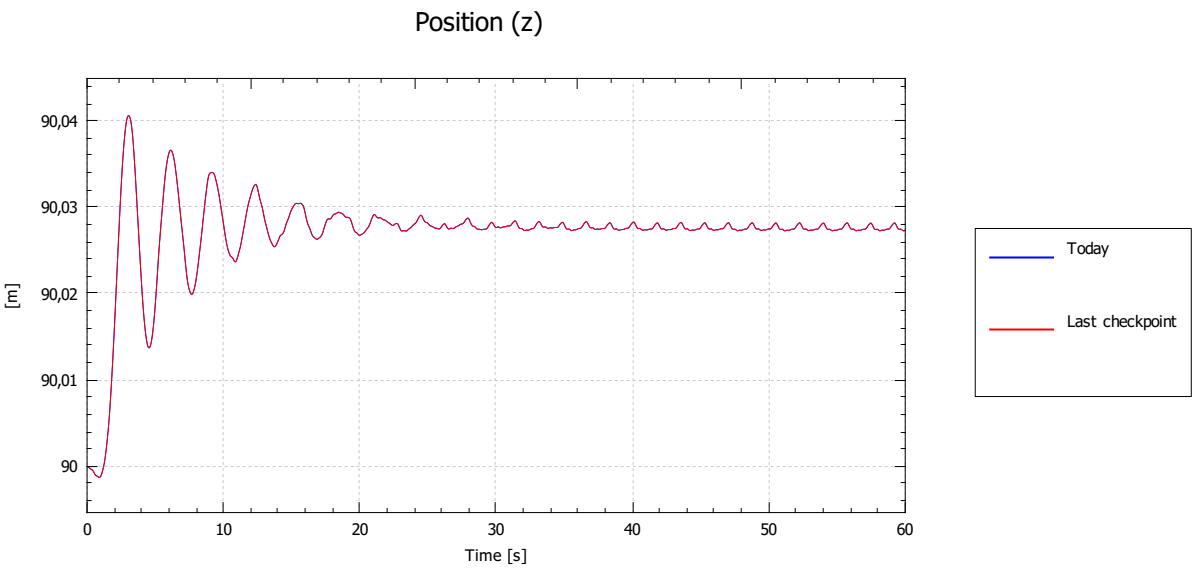
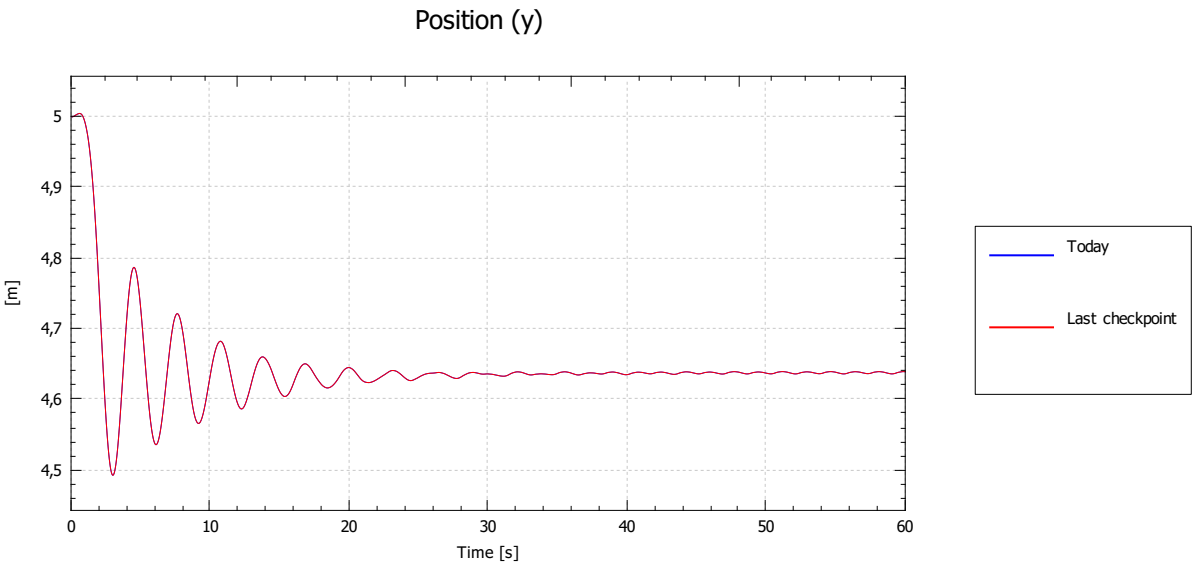
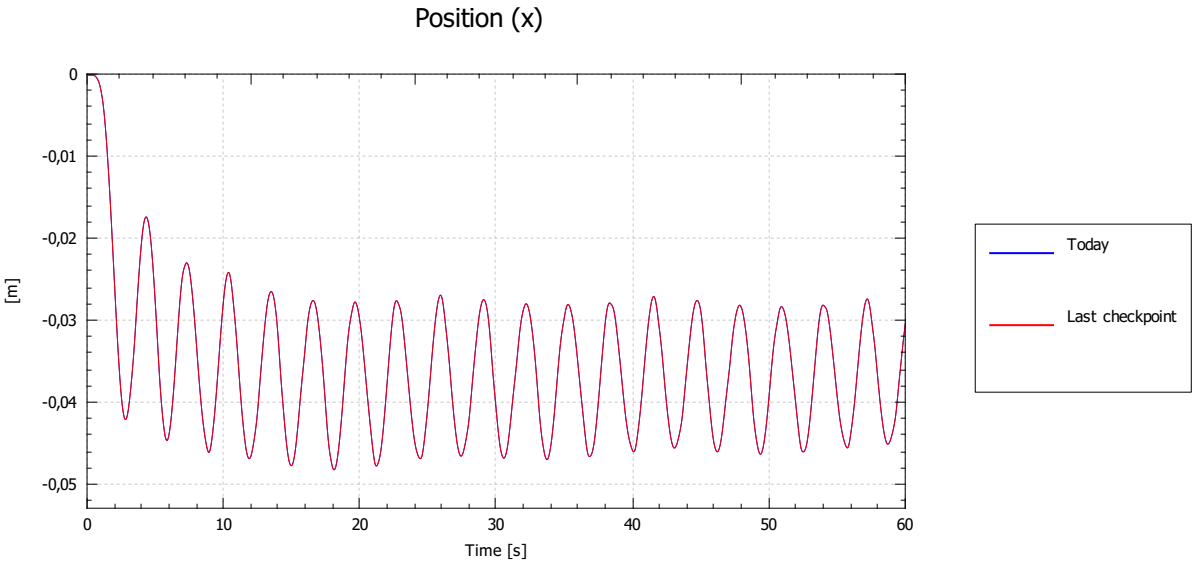


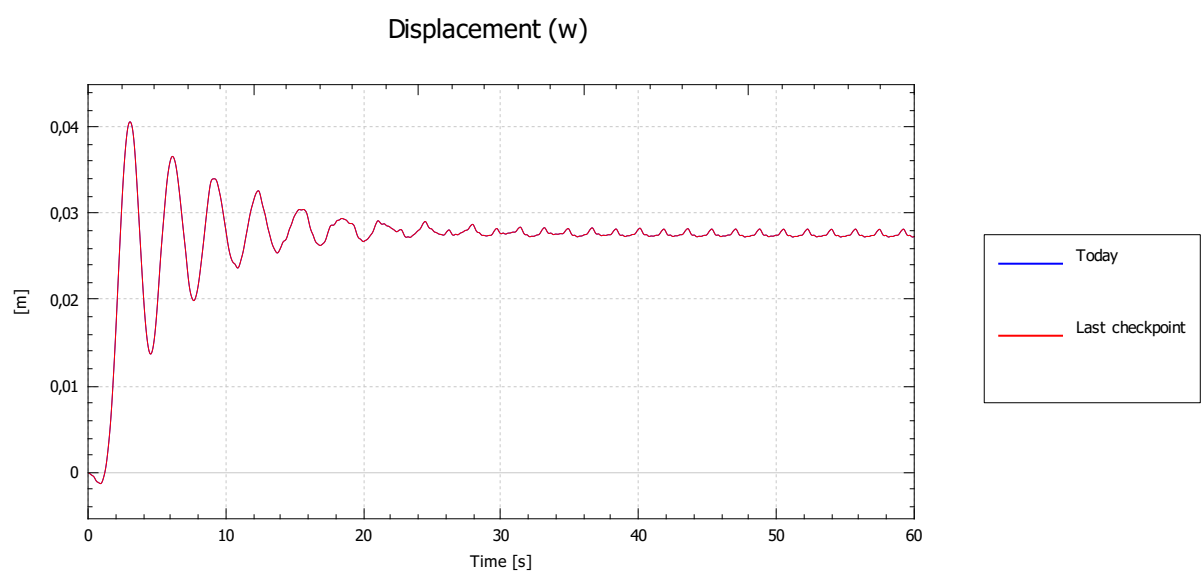
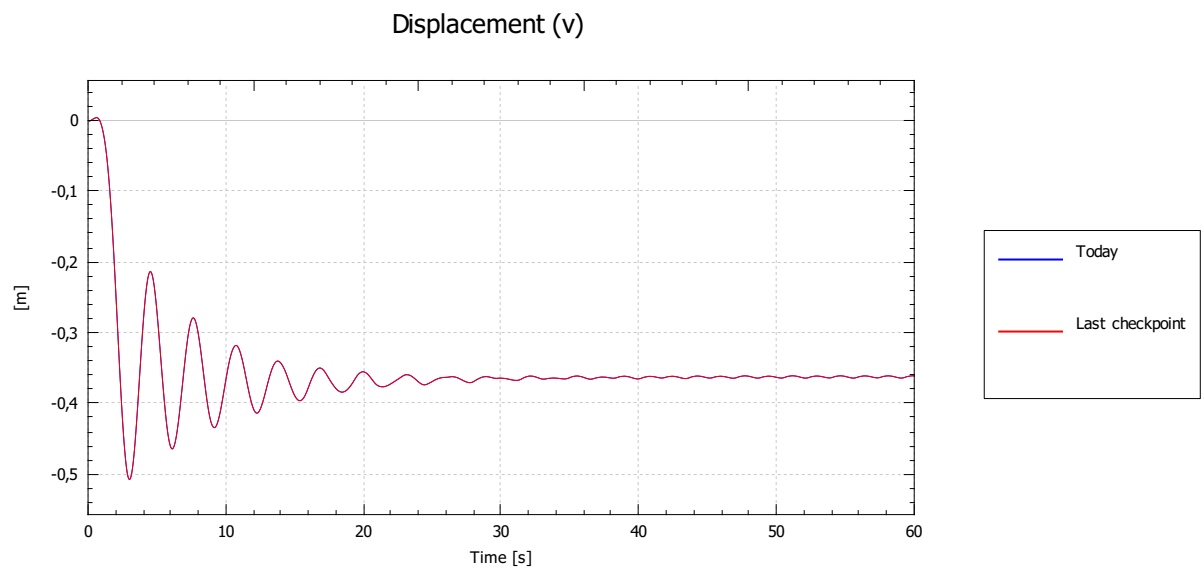
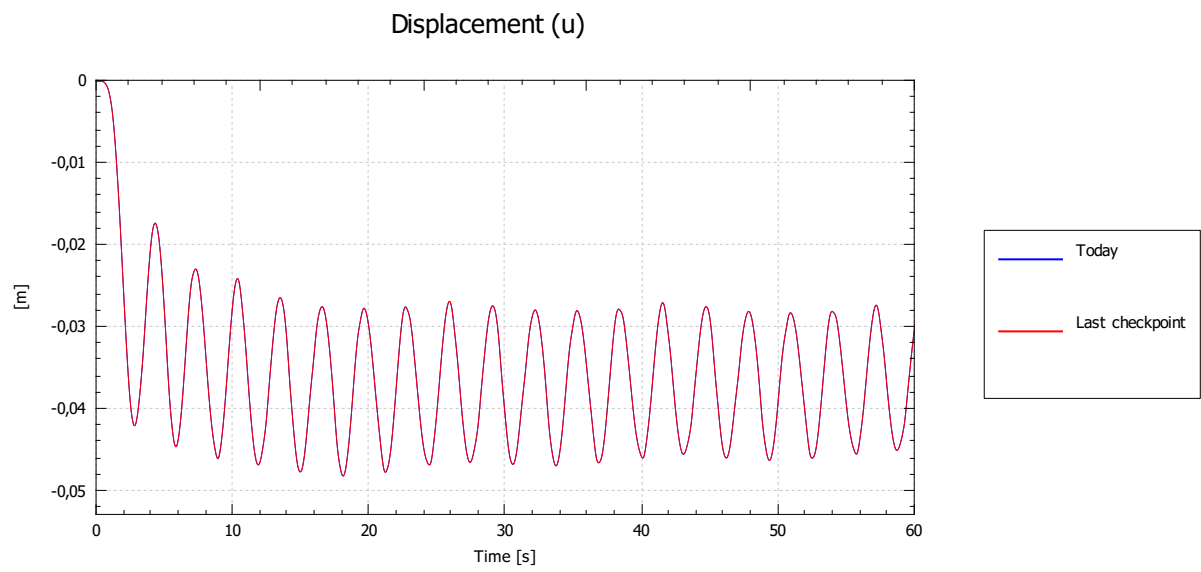
Tip deflection (in-plane)



Root torque

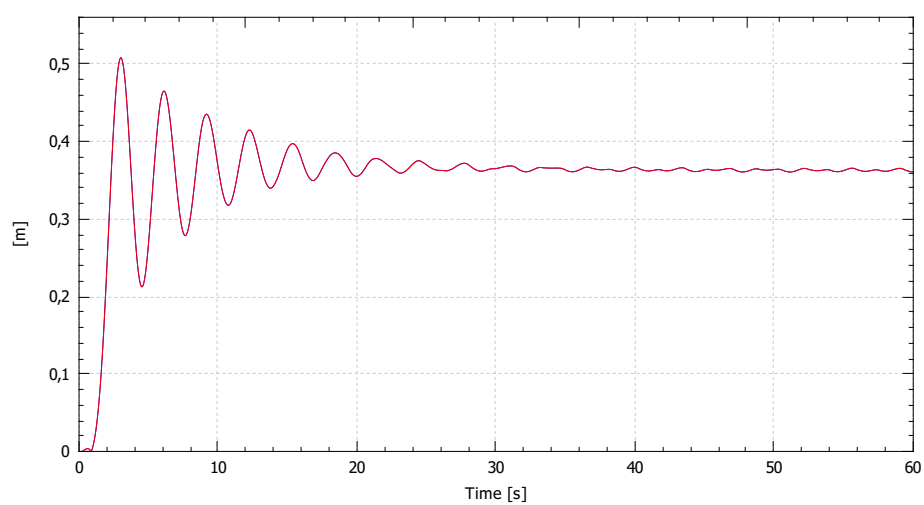




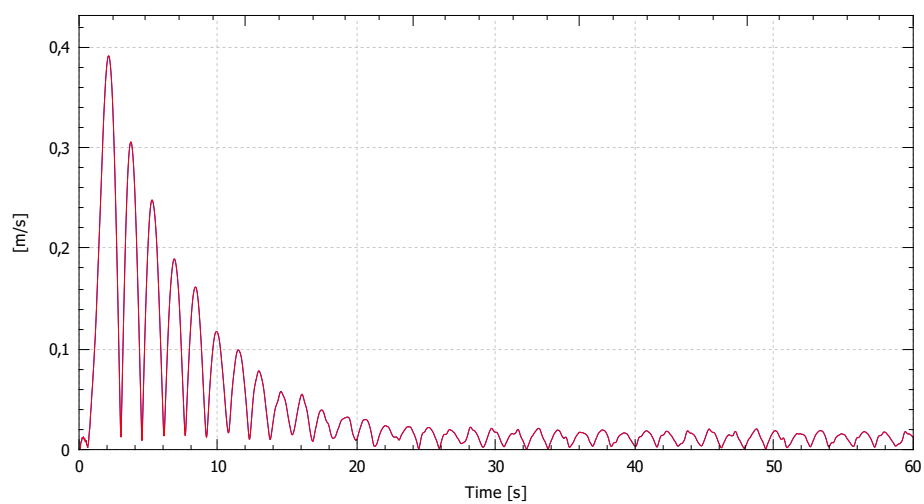




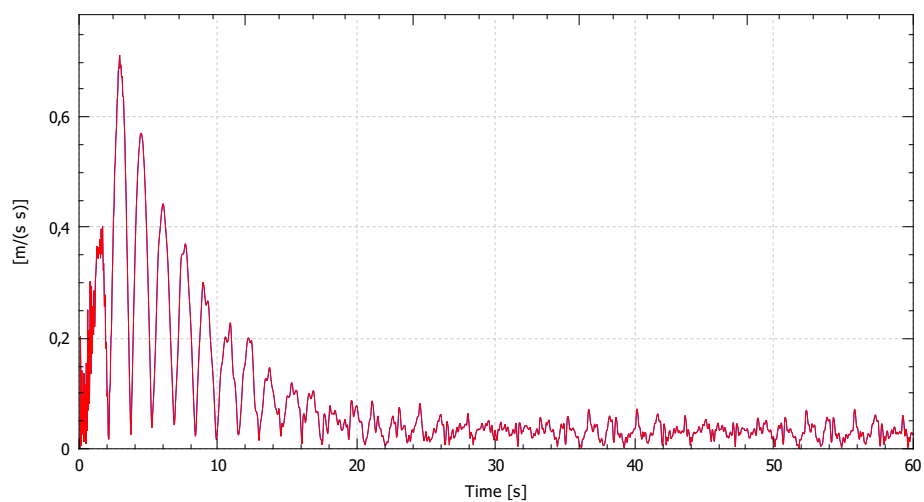
Displacement magnitude



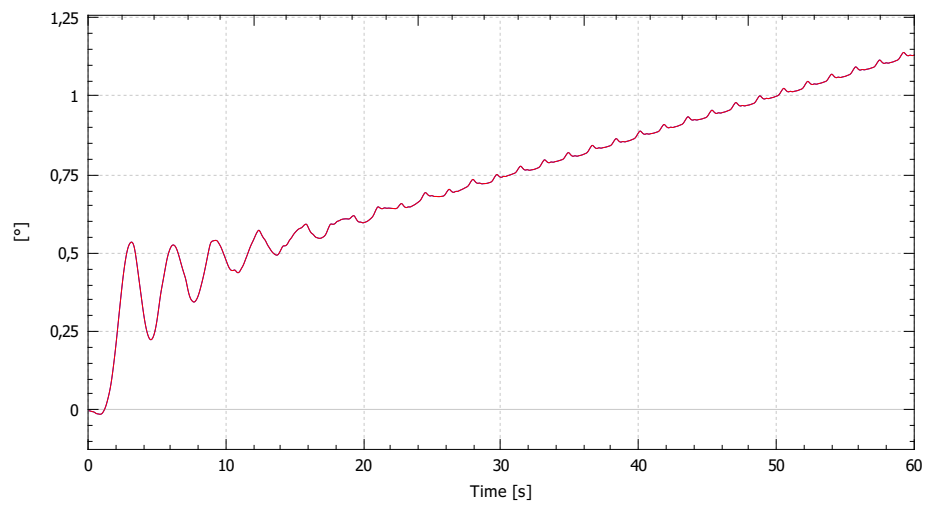
Speed



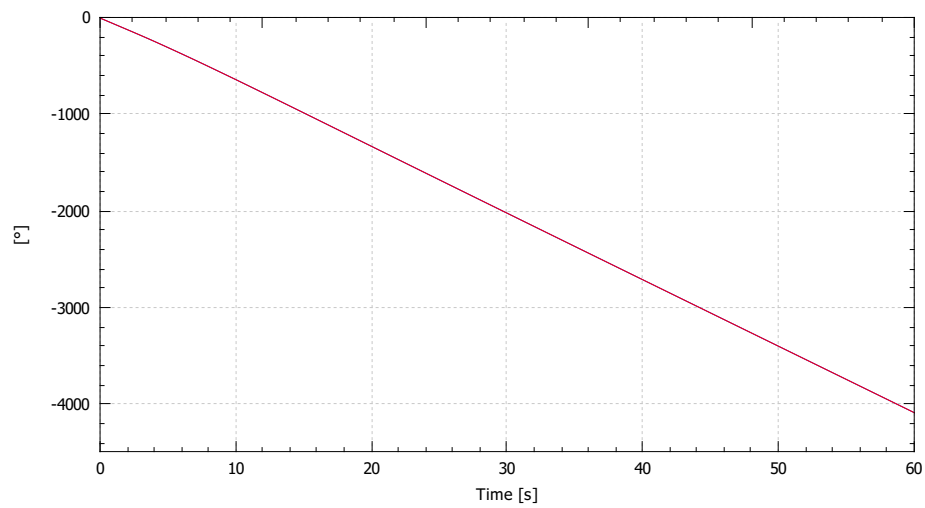
Acceleration, magnitude



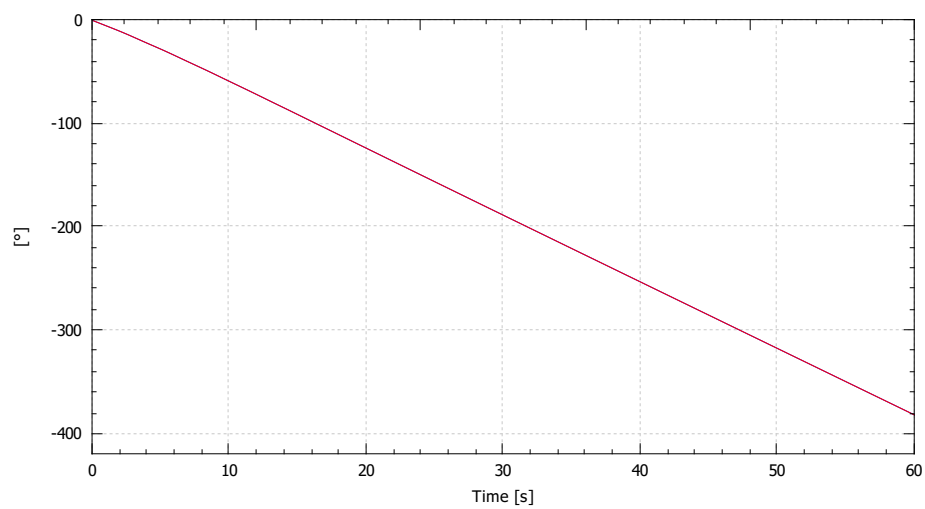
Rotational displacement (ru)



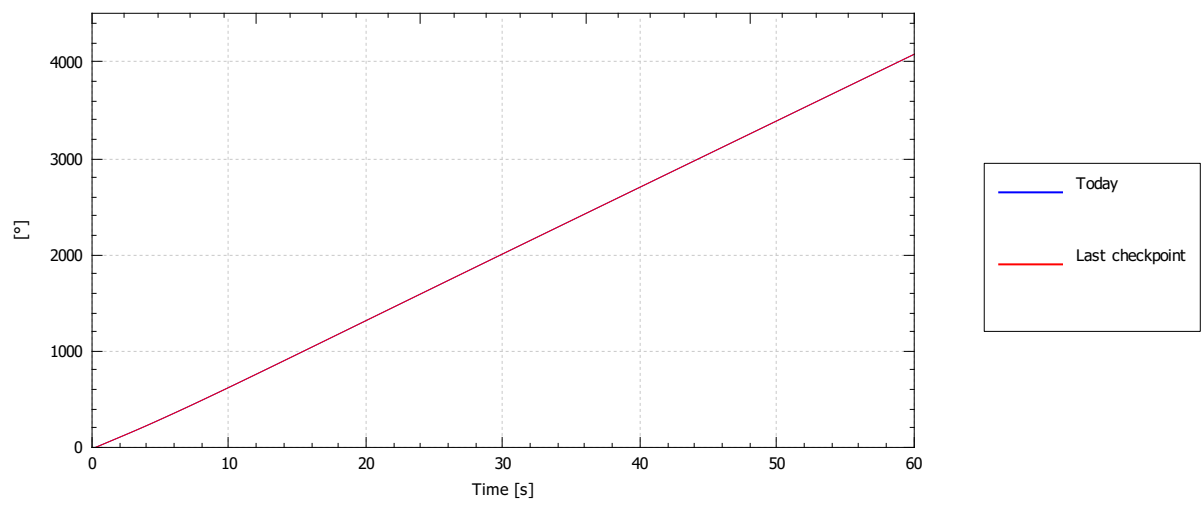
Rotational displacement (rv)



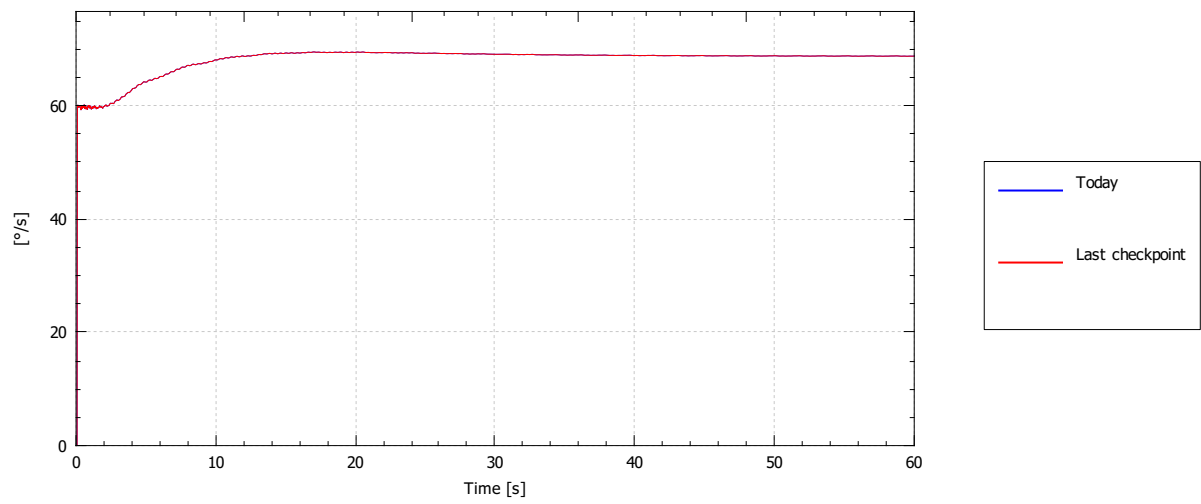
Rotational displacement (rw)



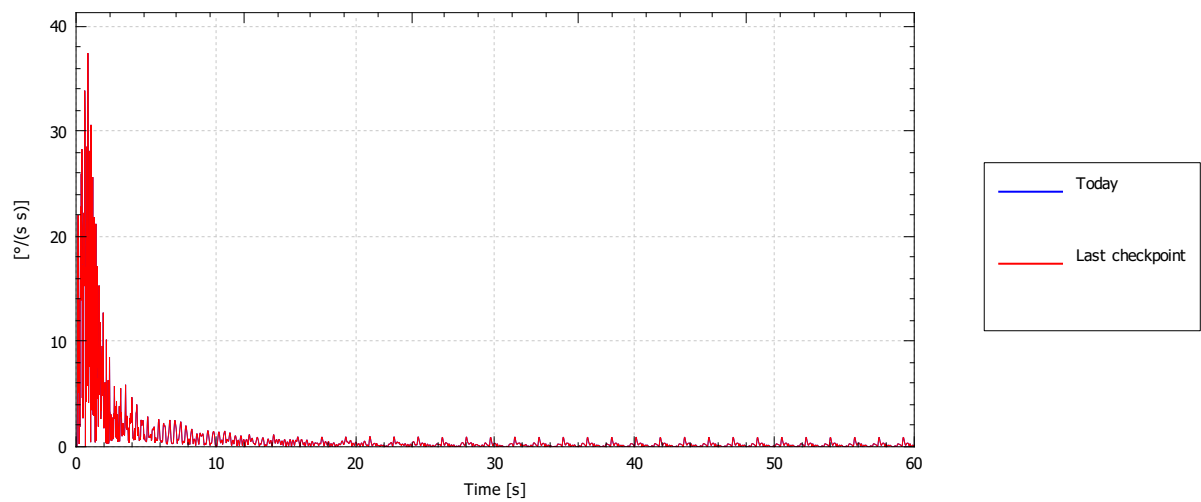
Rotational displacement magnitude



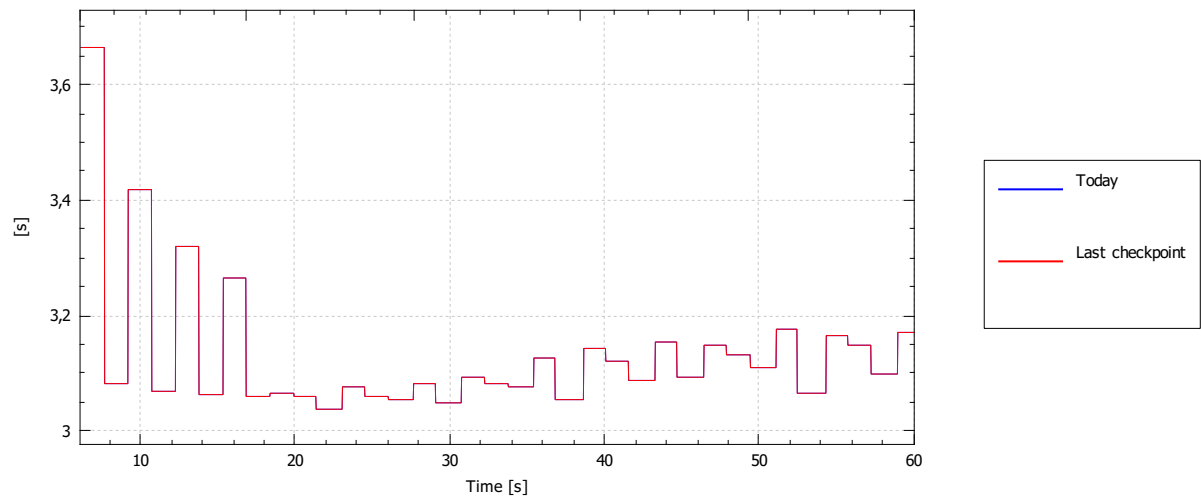
Rotational speed



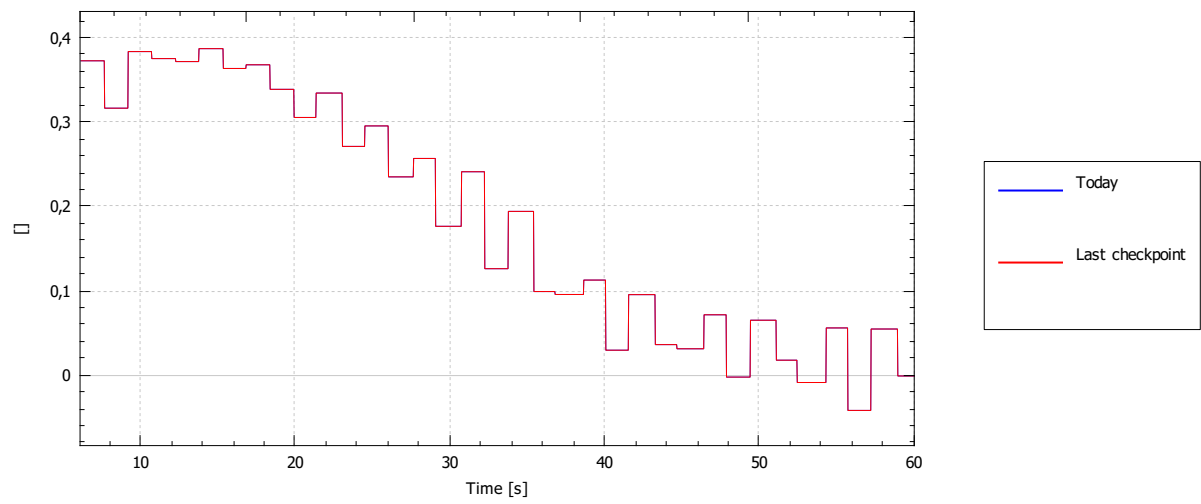
Rotational acceleration mag



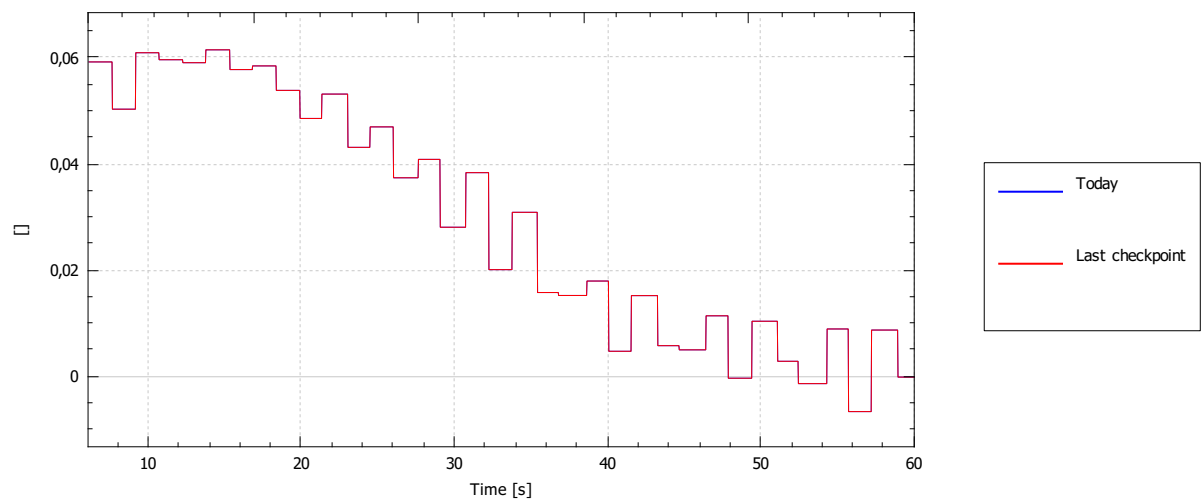
Displacement period



Displacement logarithmic decrement

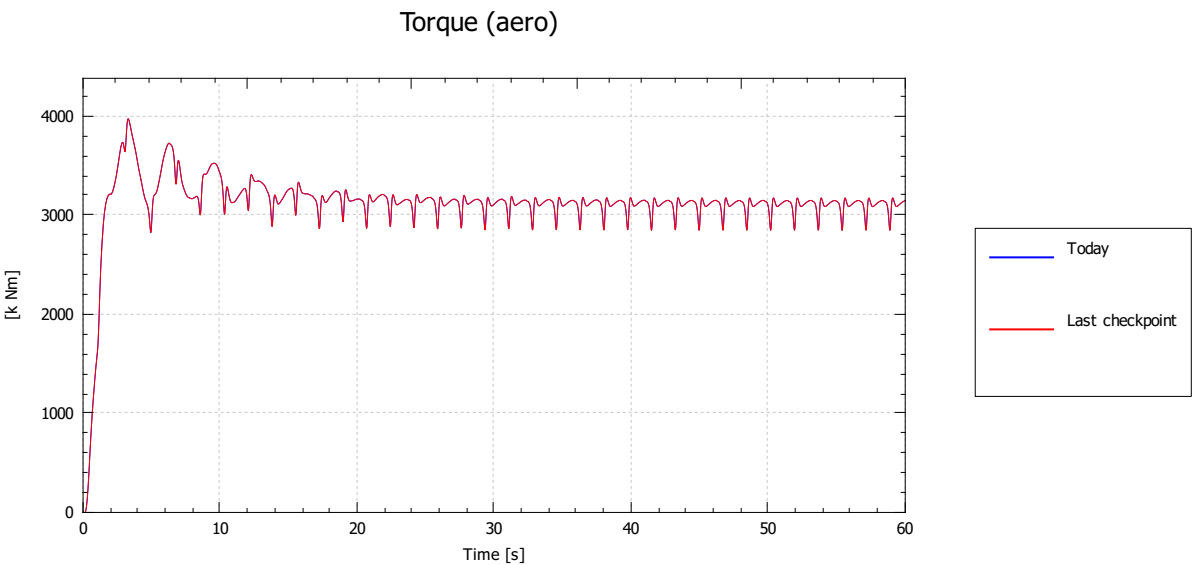
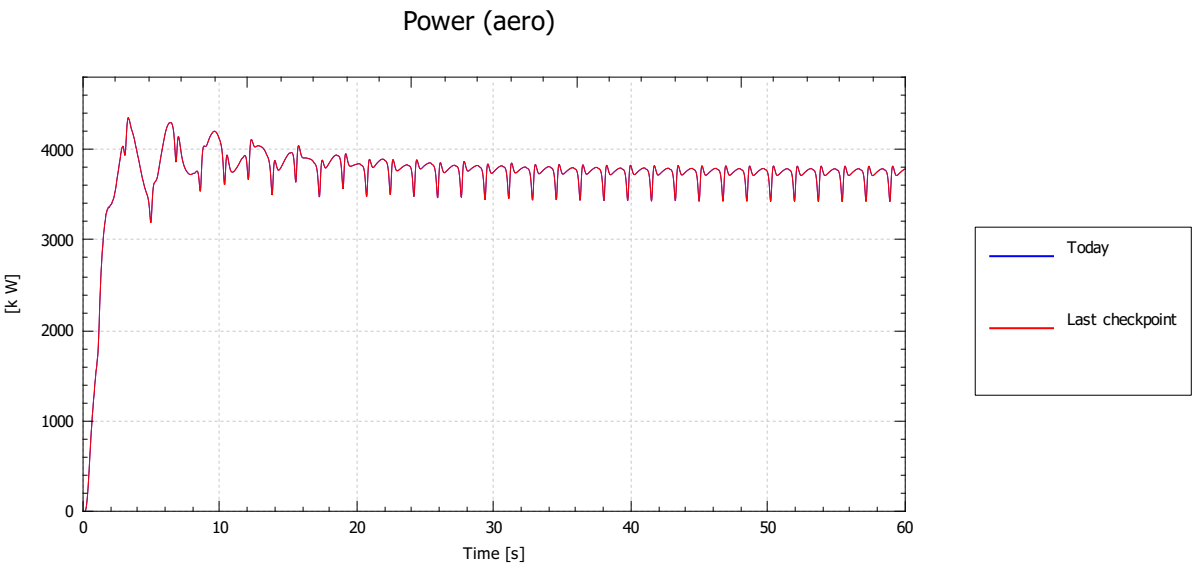


Displacement damping ratio

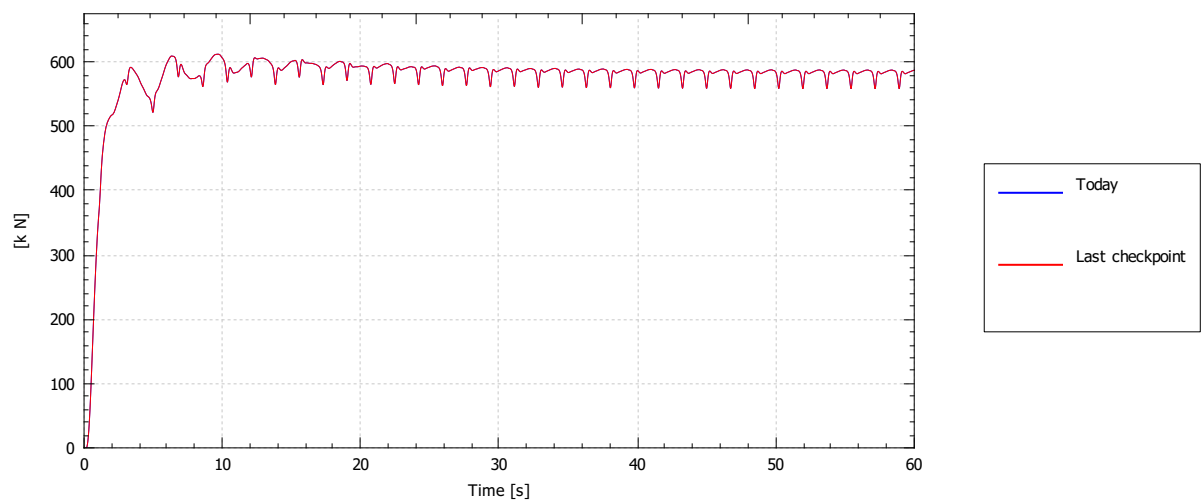


Load case: Time steps

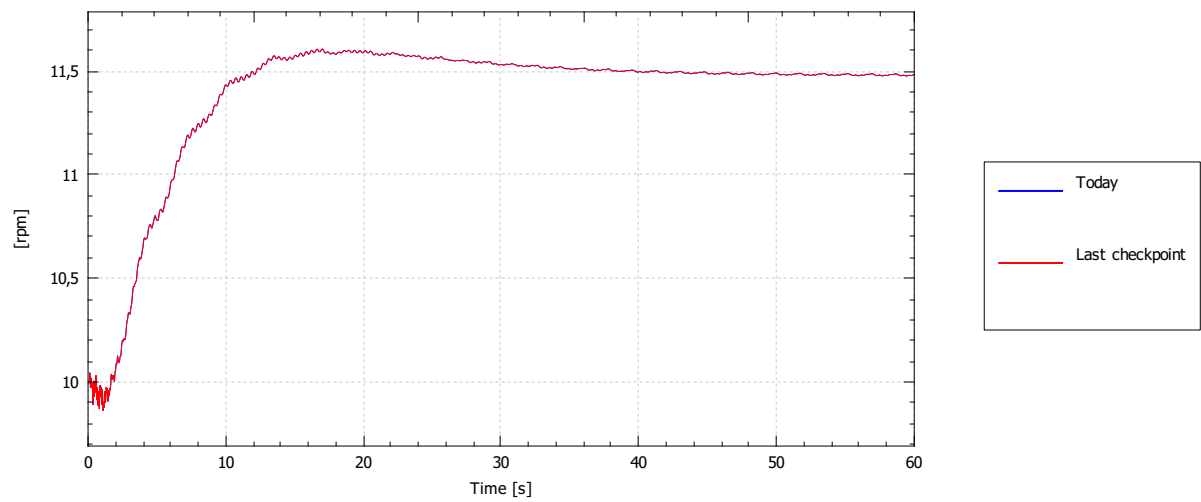
Rotor



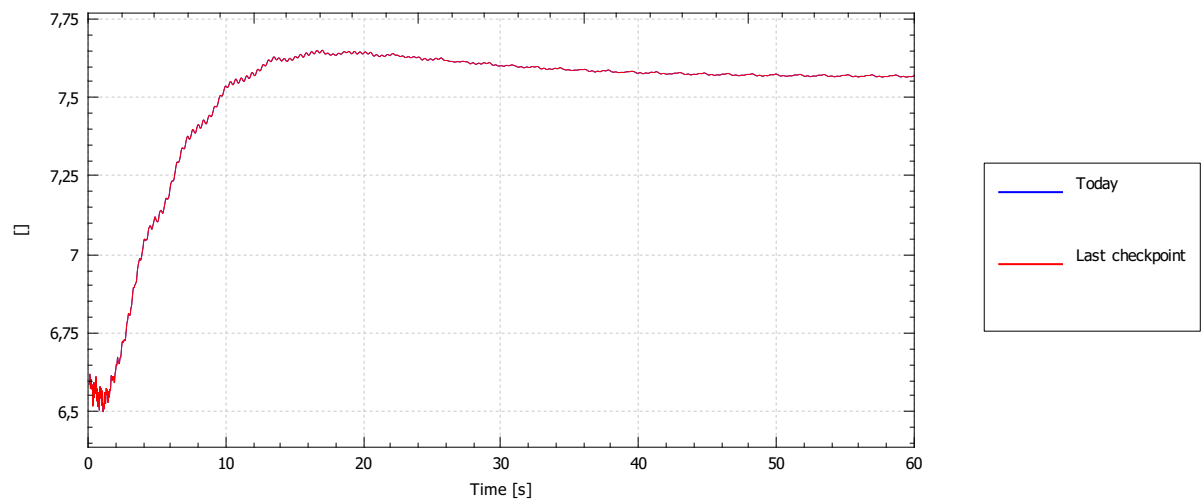
Thrust (aero)



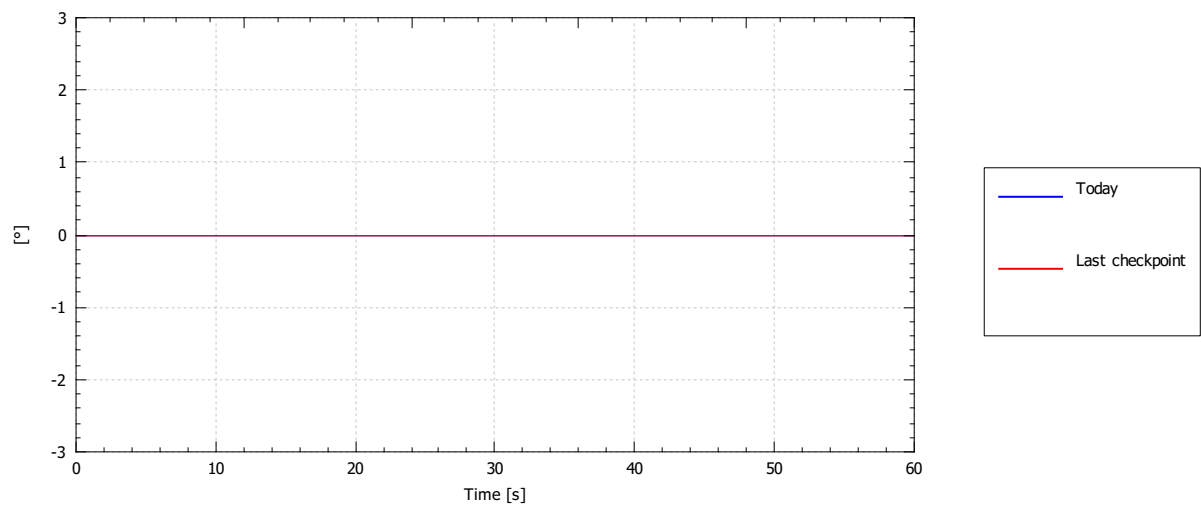
RPM



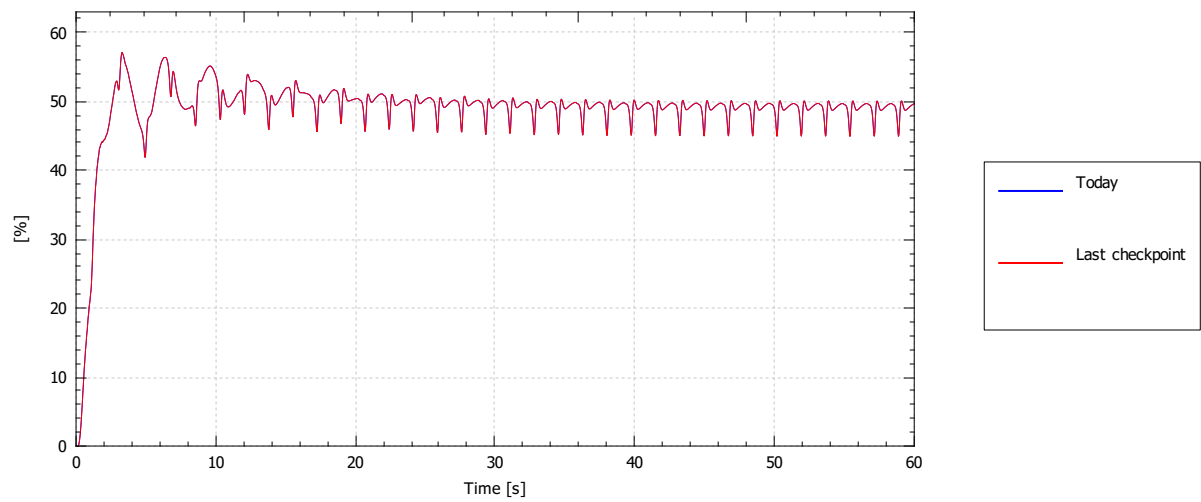
TSR



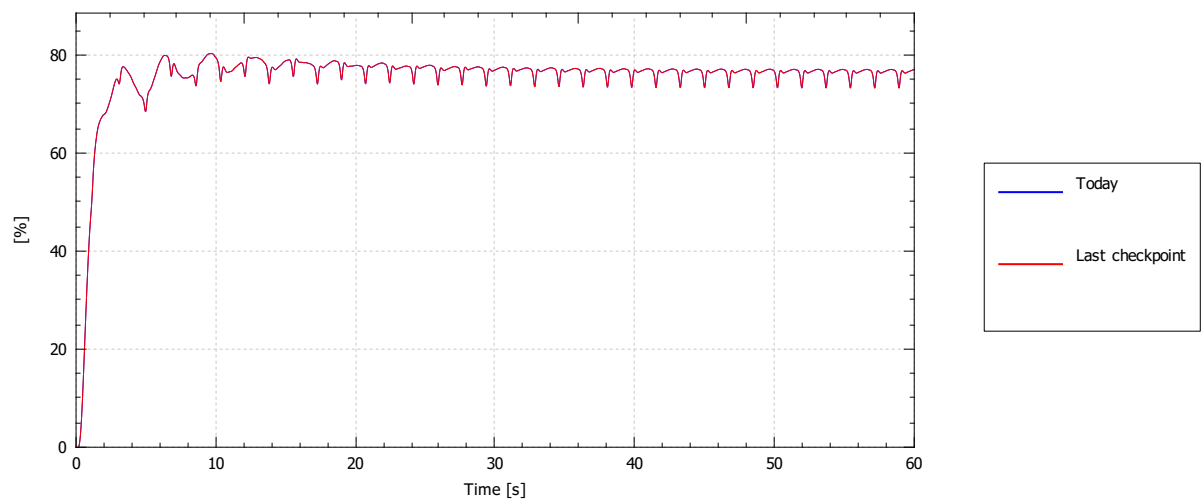
Representative demanded pitch angle



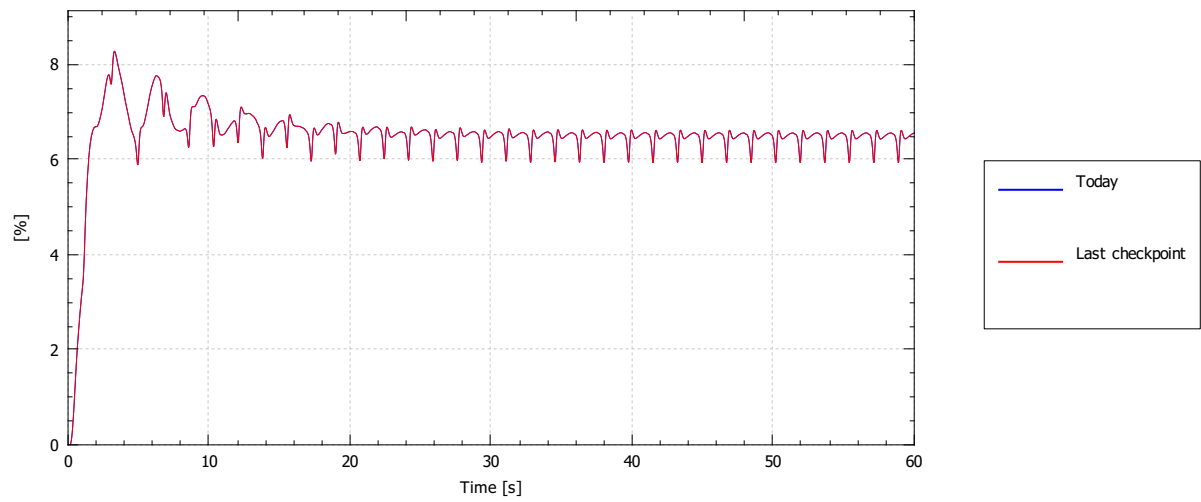
Power coef. (CP)



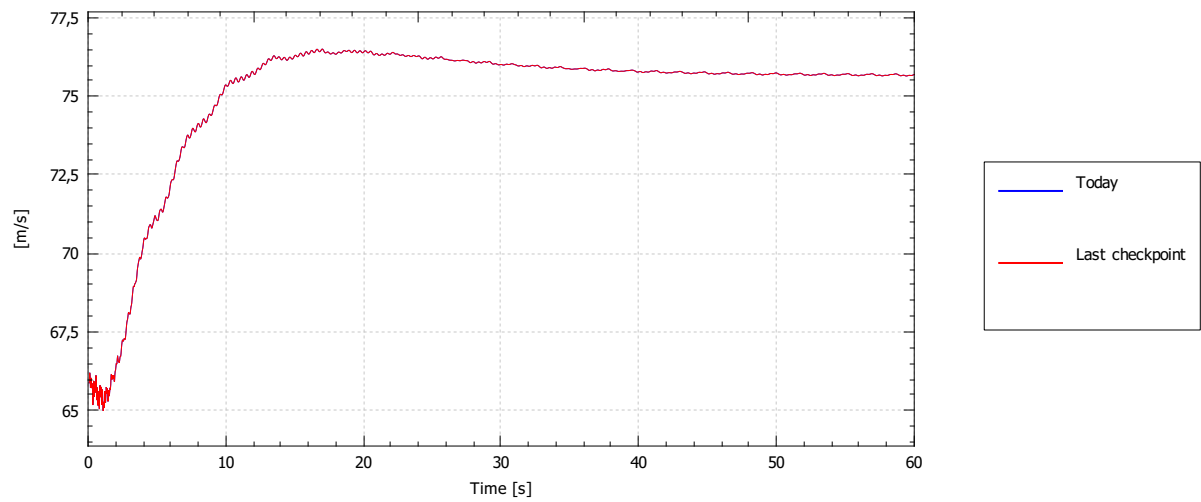
Thrust coef. (CT)



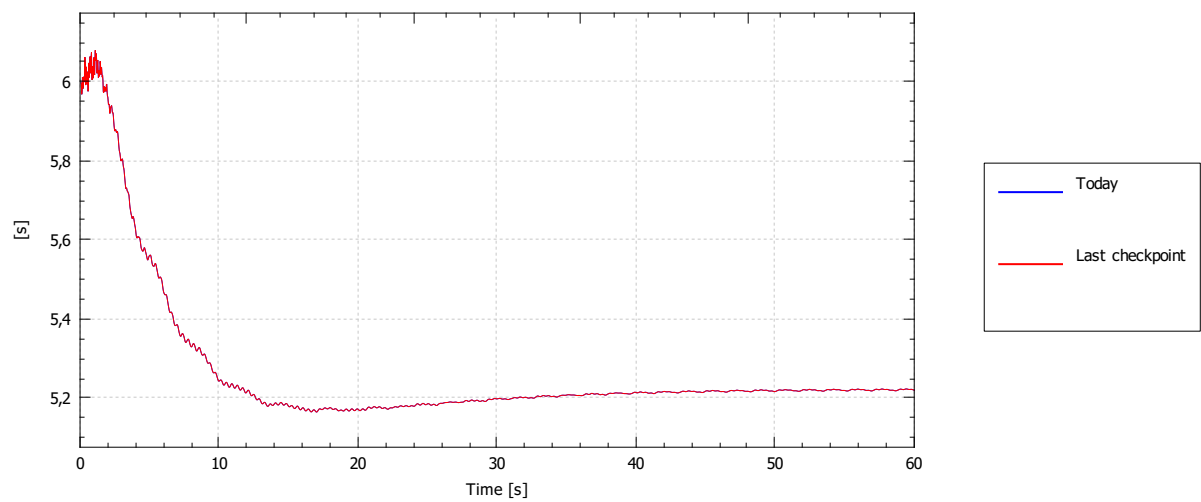
Torque coef. (CQ)



Tip speed

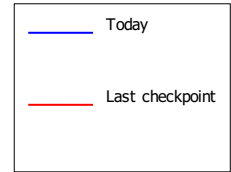
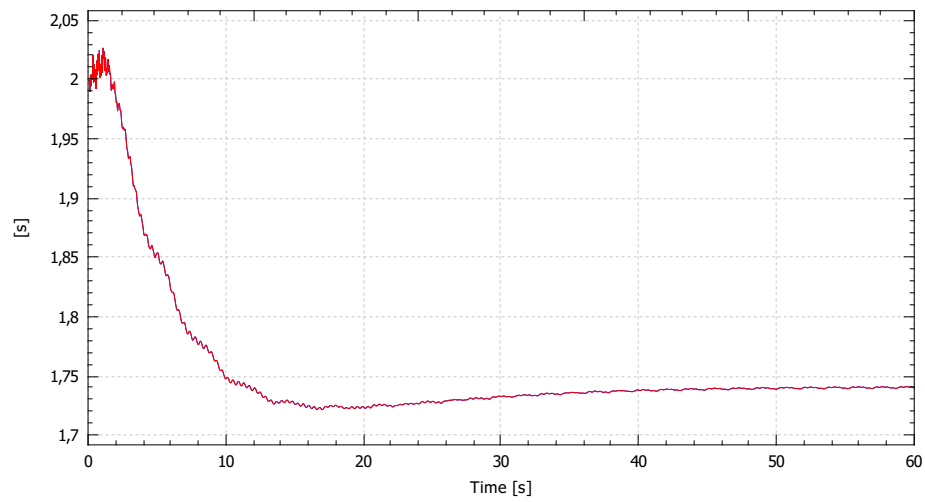


1P (one revolution)

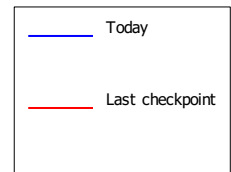
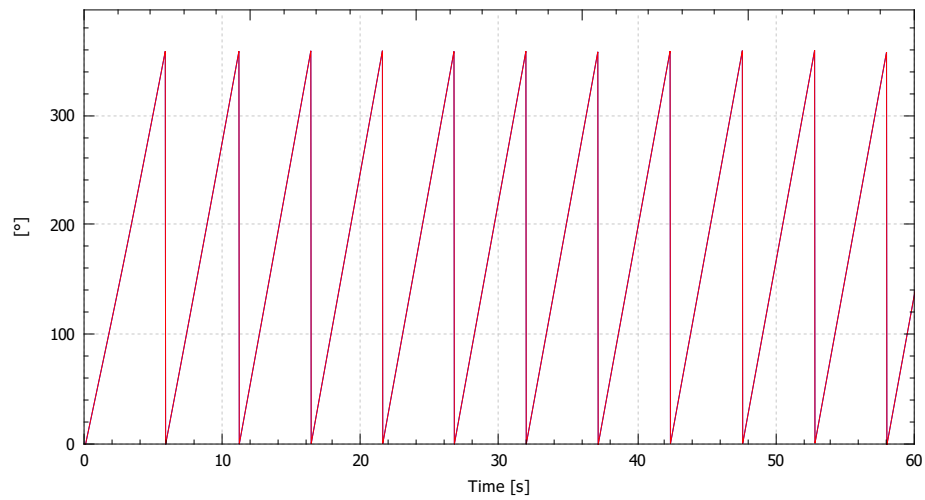




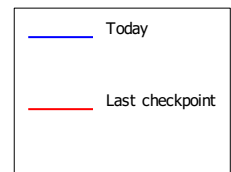
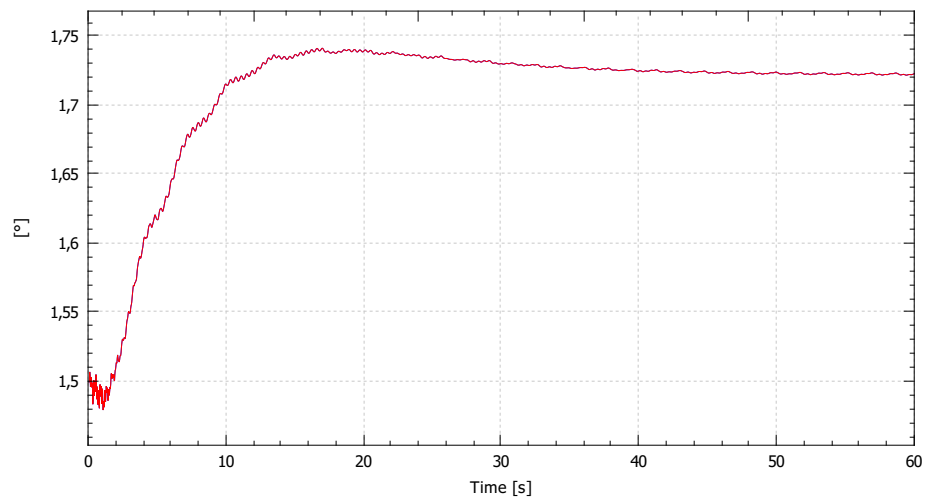
nP (blade passing)



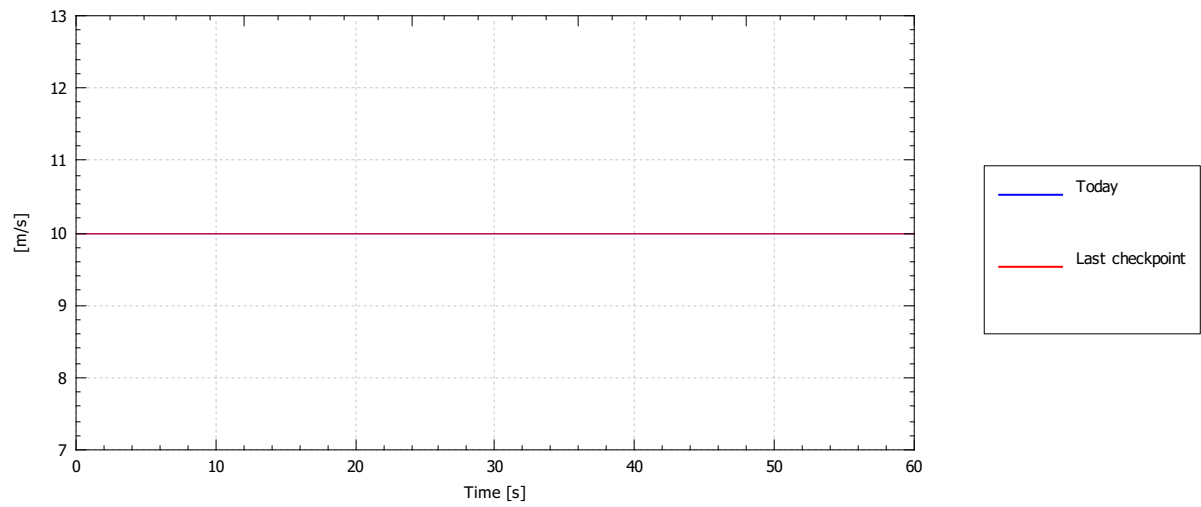
Azimuth angle



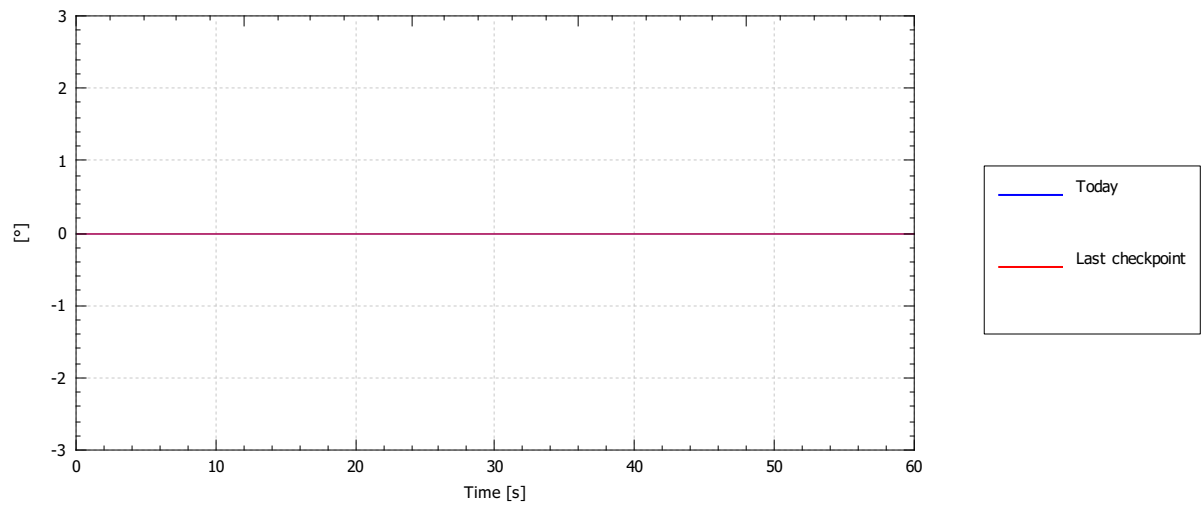
Rotation per timestep



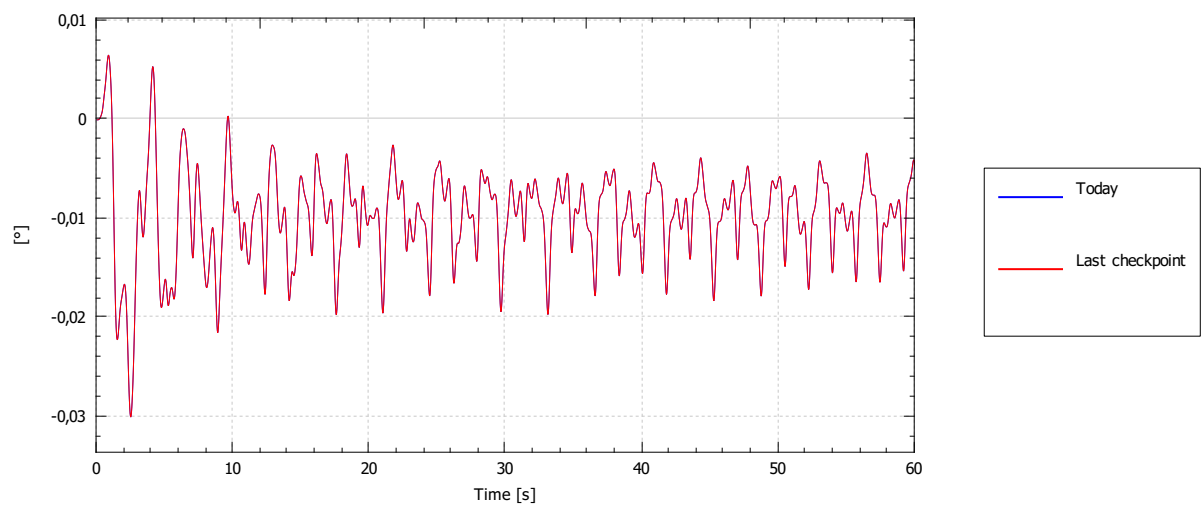
Wind speed at hub, magnitude



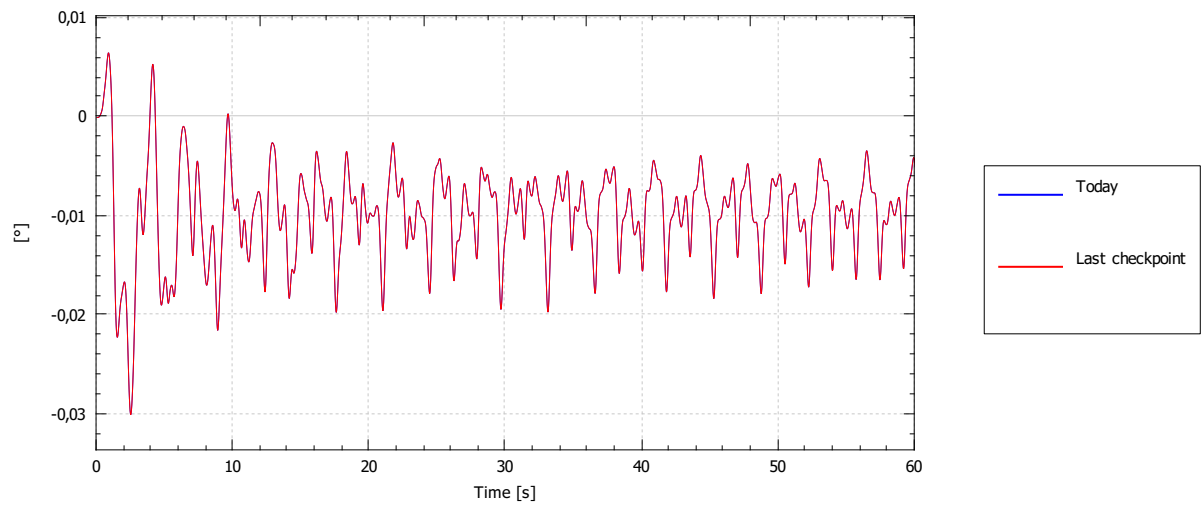
Wind angle at hub



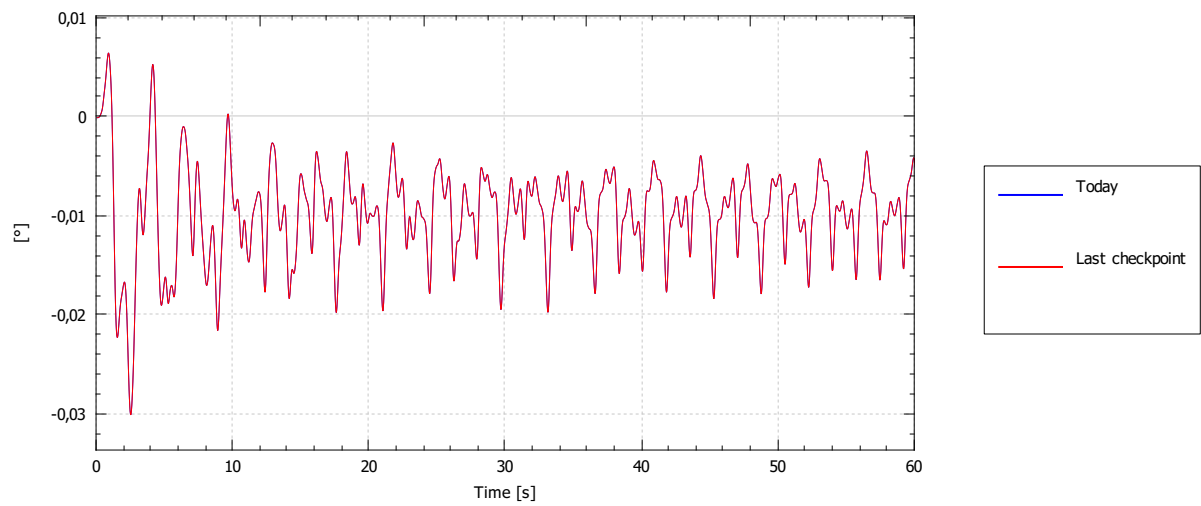
Yaw angle relative to forward



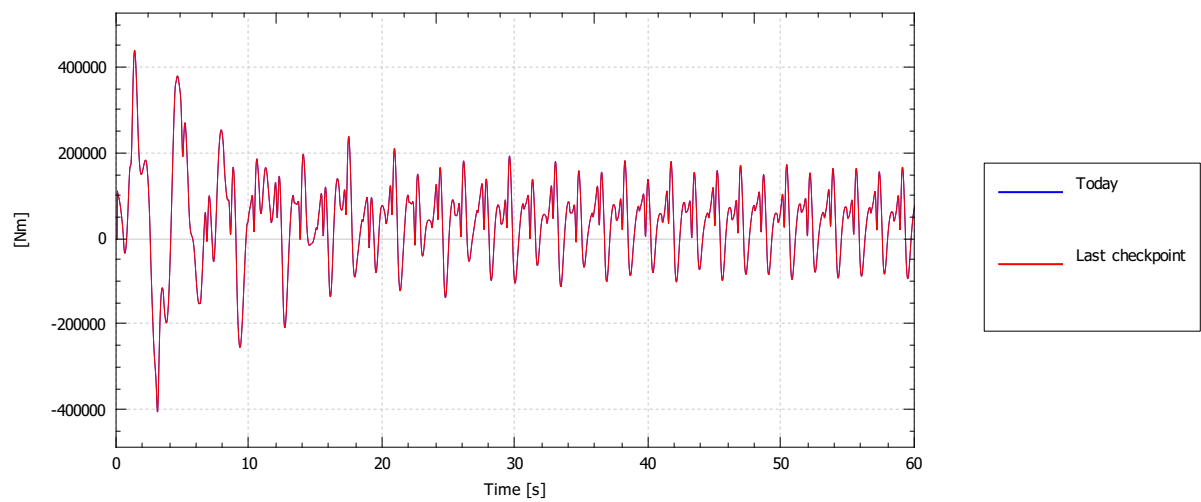
Yaw angle to reference direction



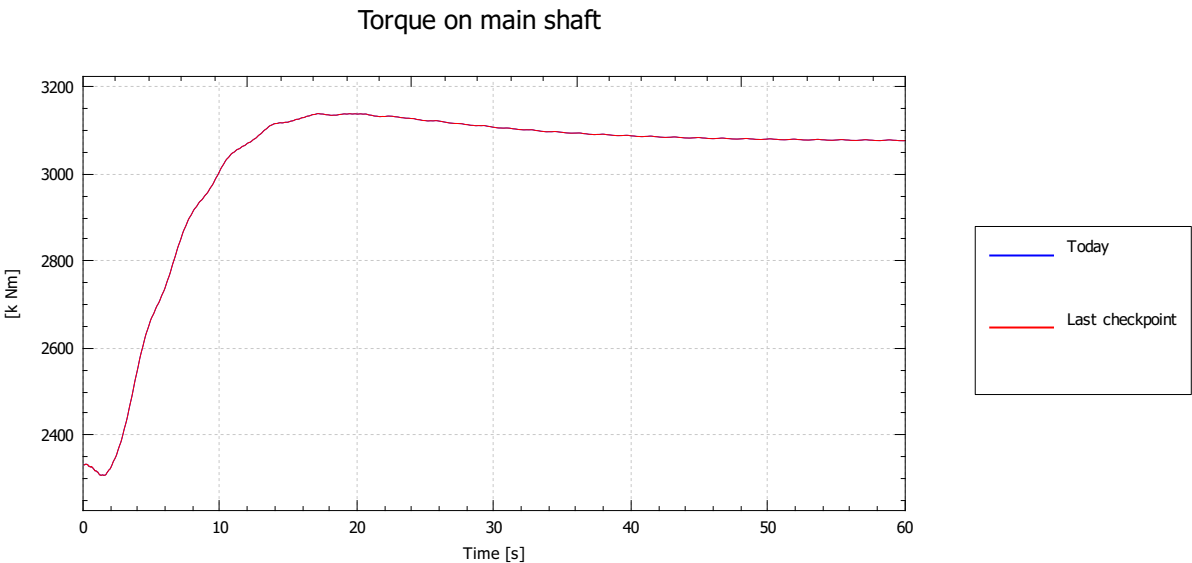
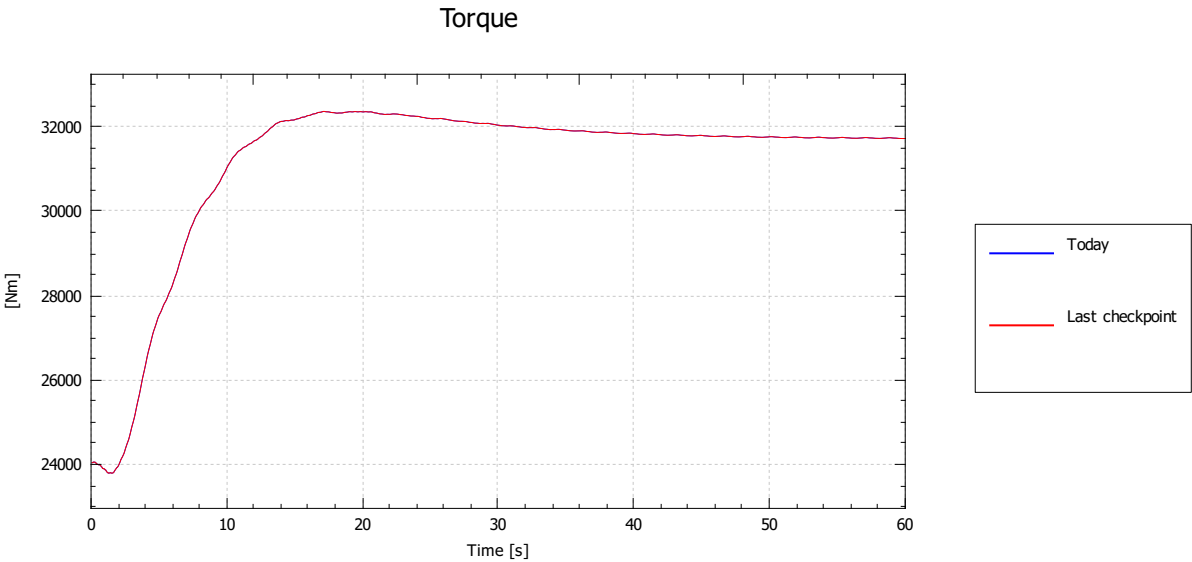
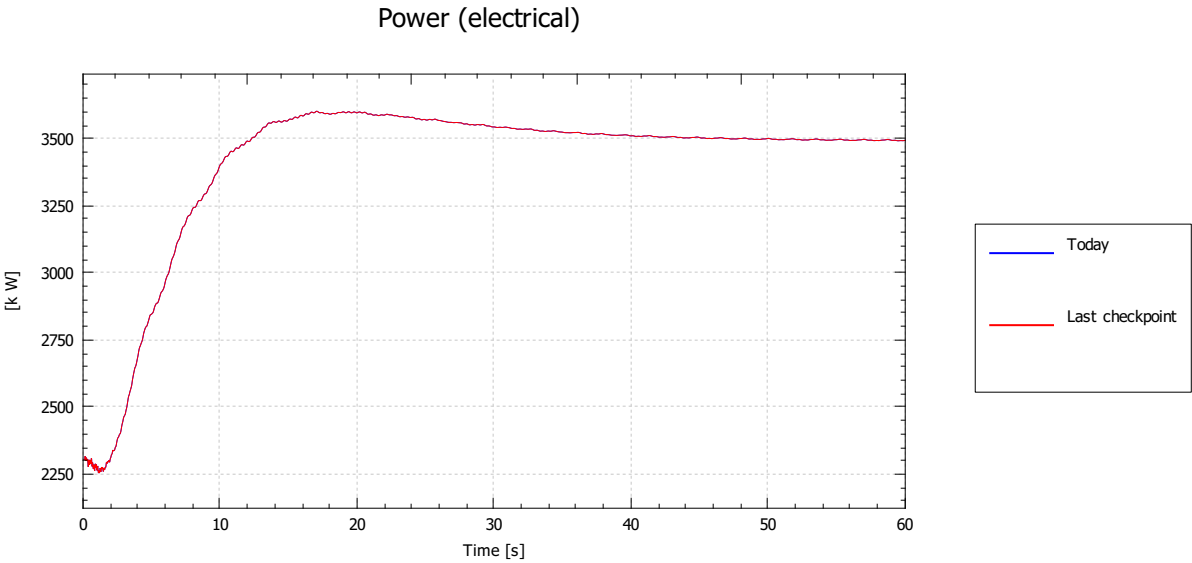
Yaw error



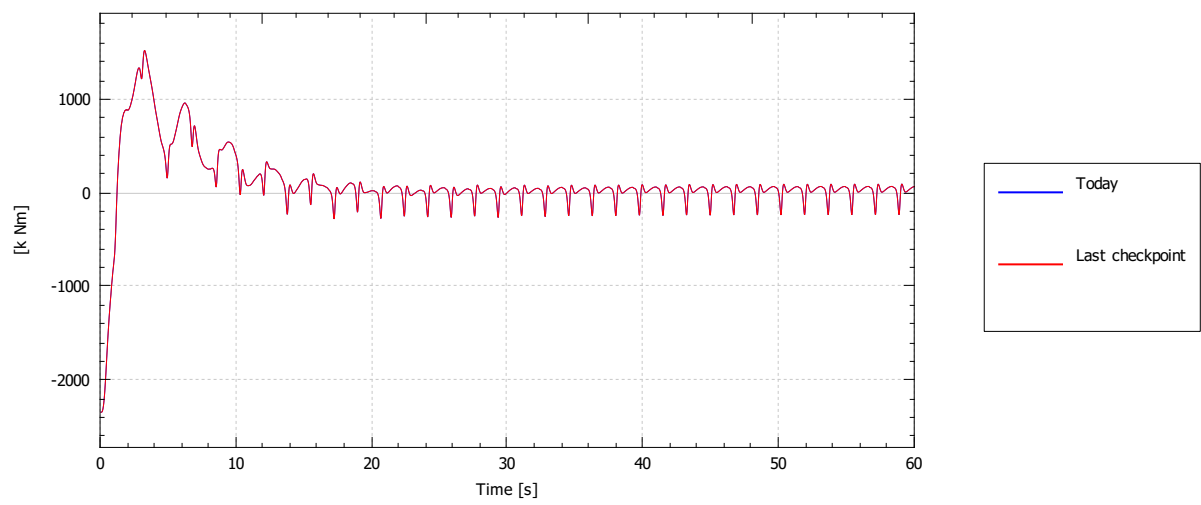
Torque about yaw axis



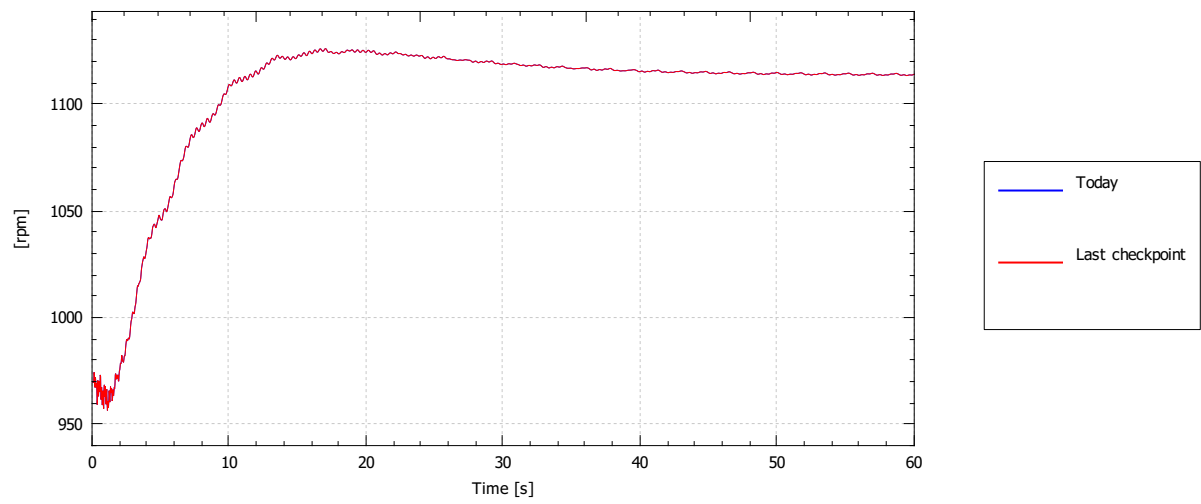
Generator



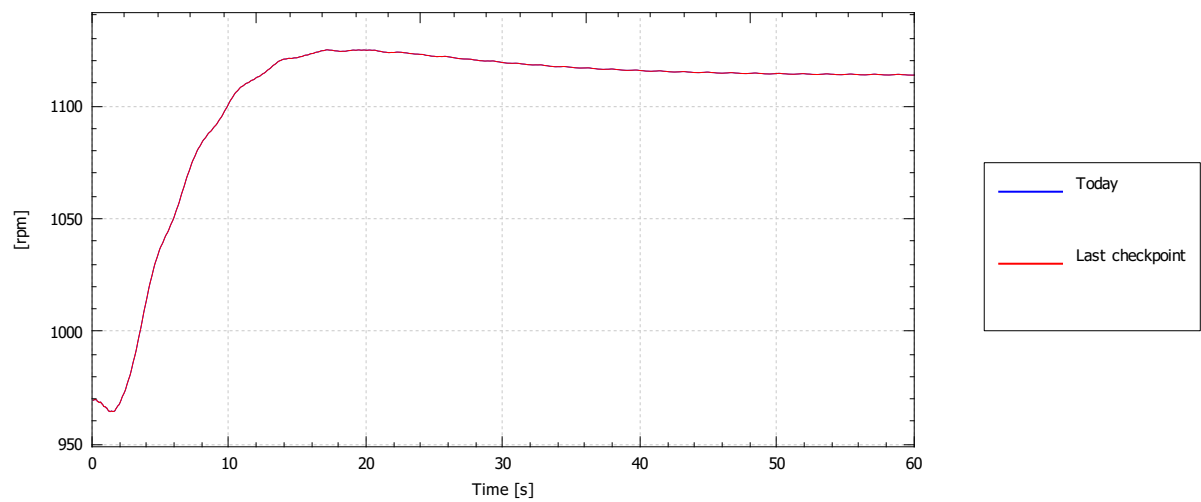
Torque diff. on main shaft



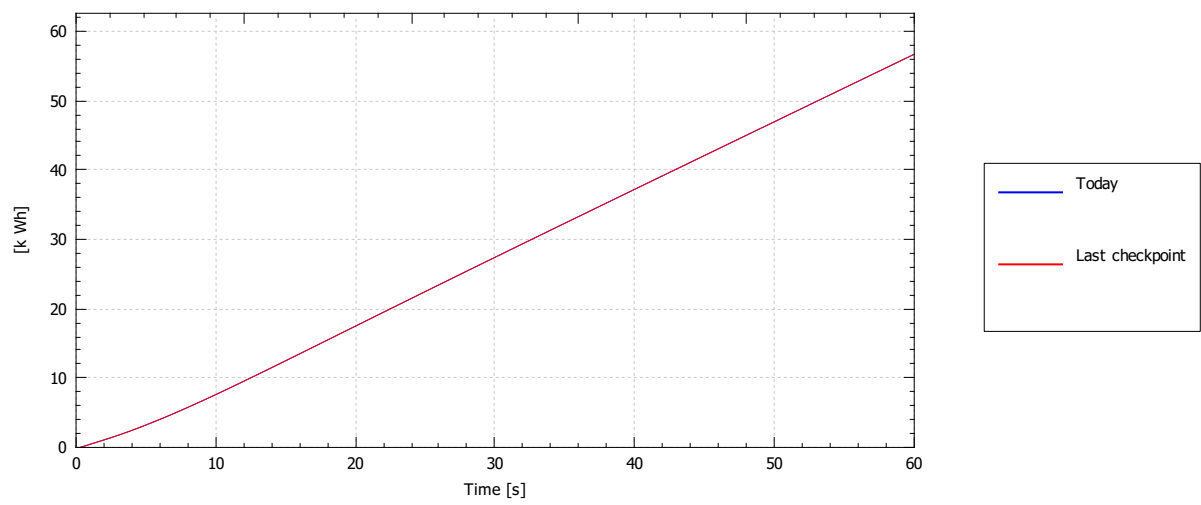
RPM



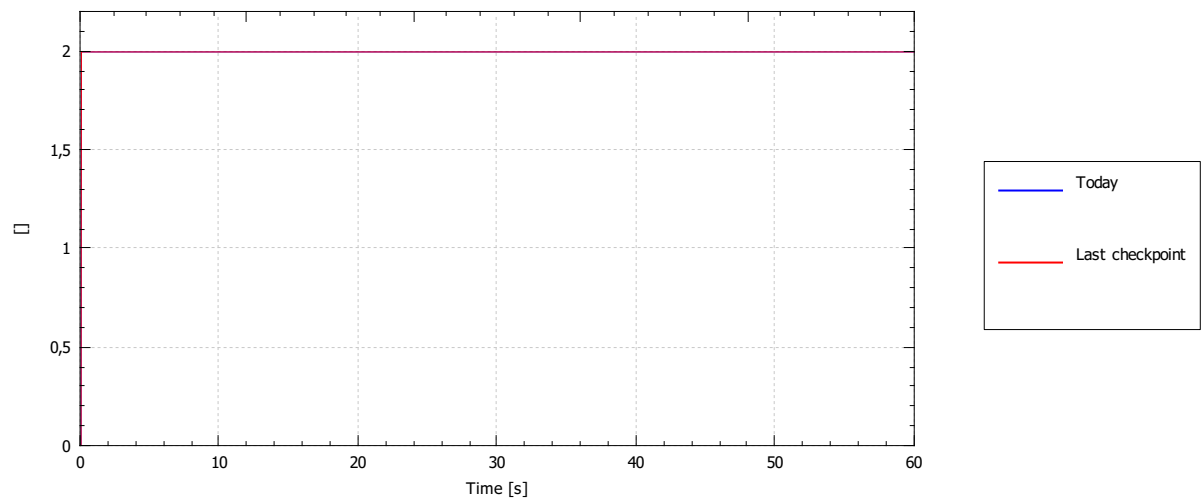
Filtered RPM



### Electricity production

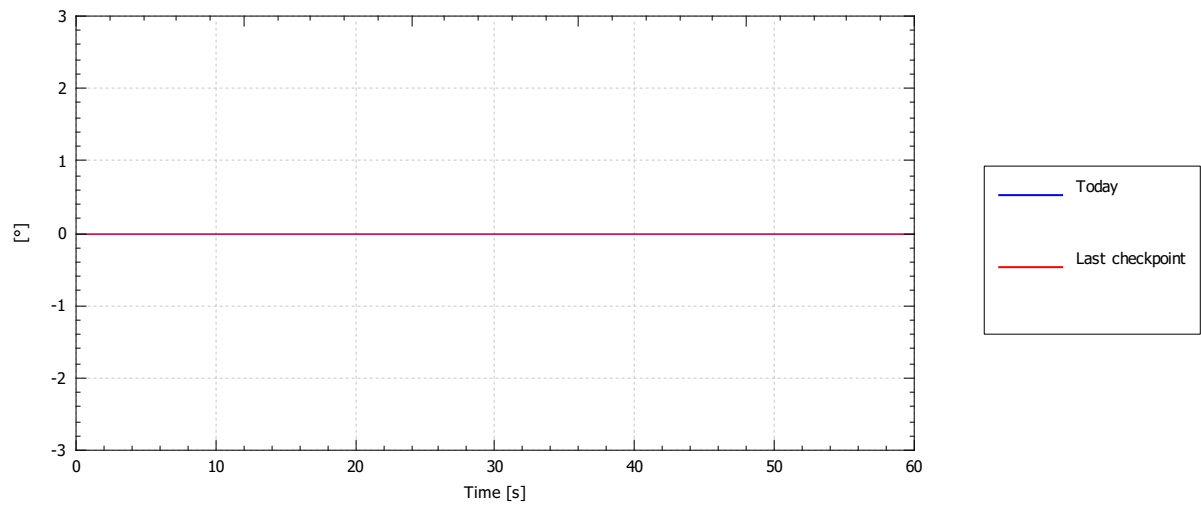


### Region

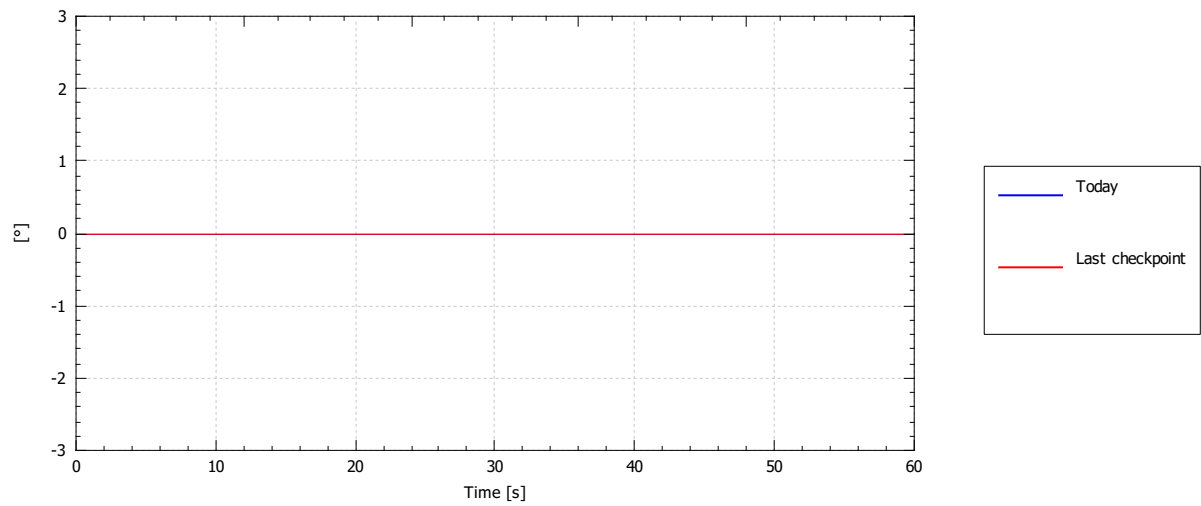


### Demanded pitch controller

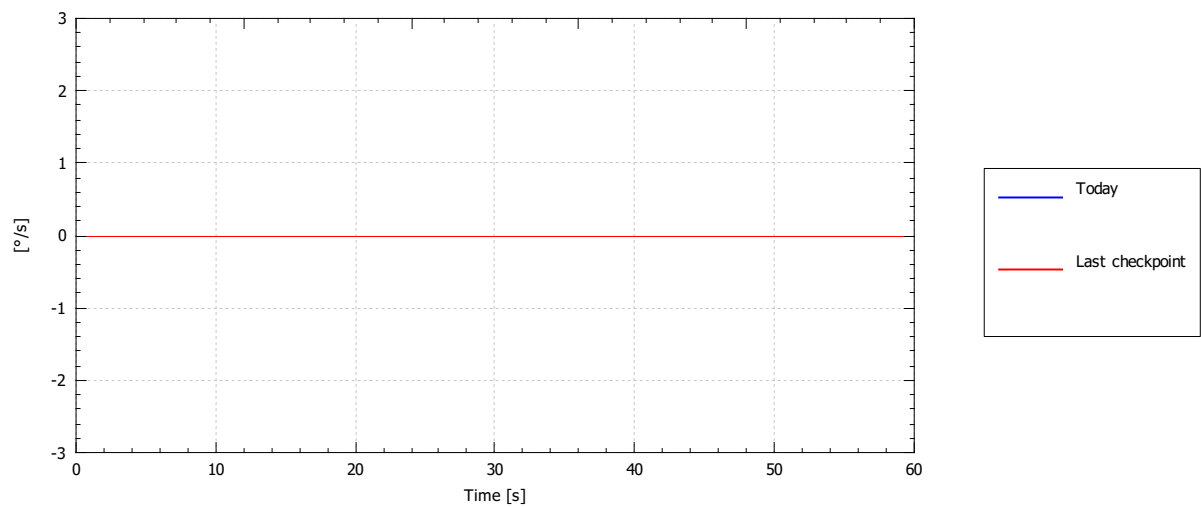
Demanded collective pitch angle



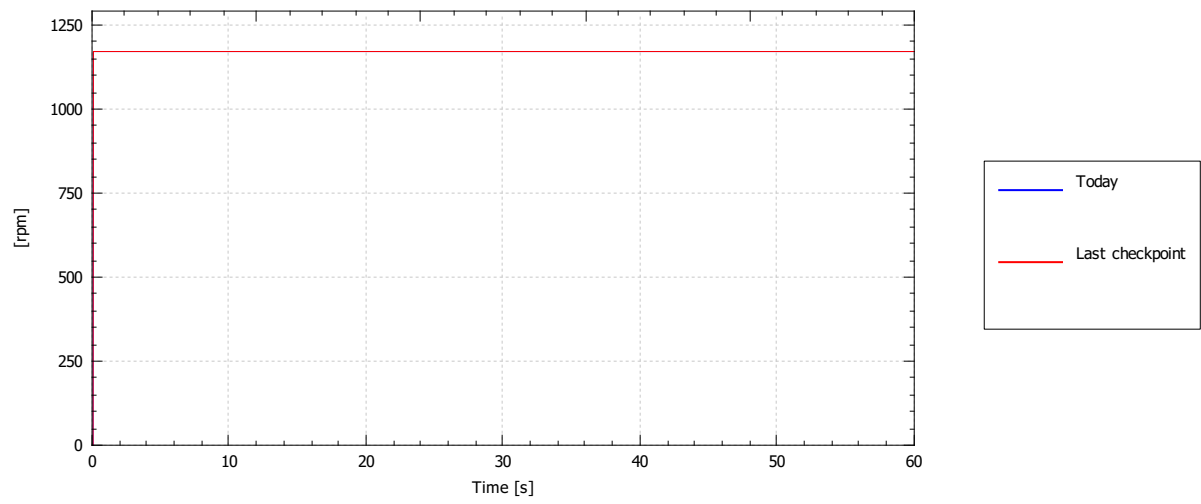
Cumulative demanded collective pitch angle



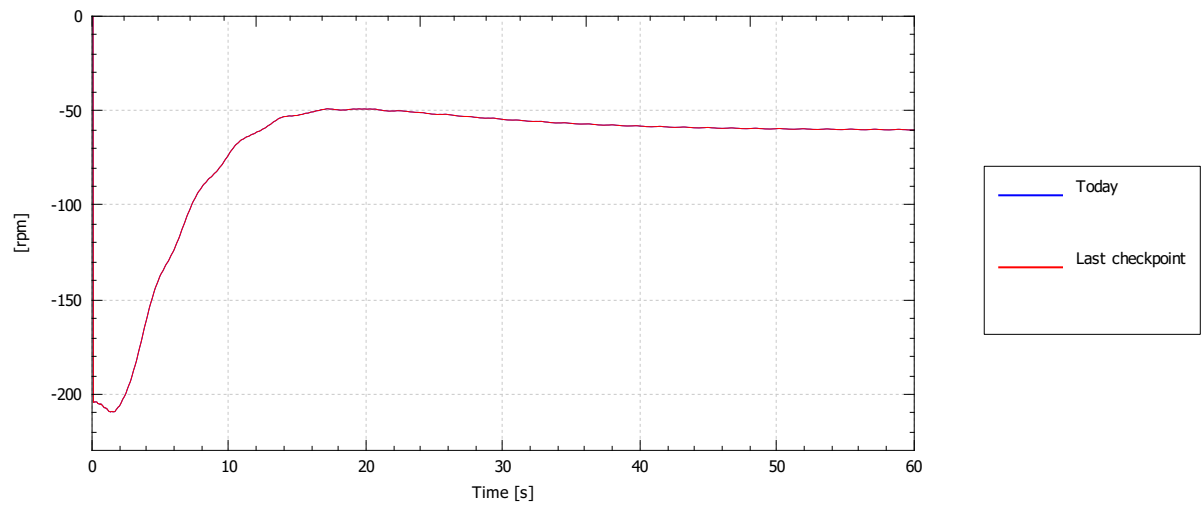
Demanded collective pitch angle rate



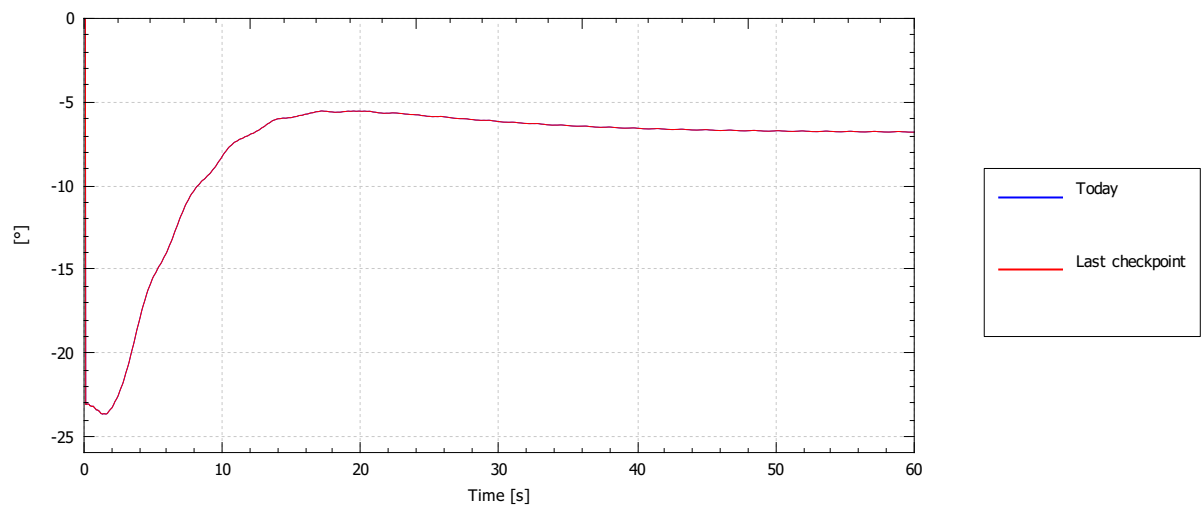
Set point



RPM error

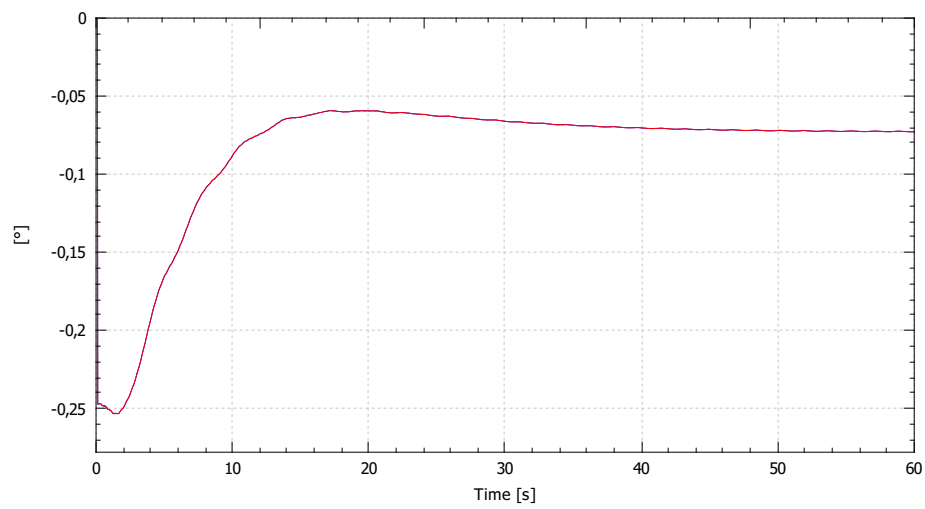


P term

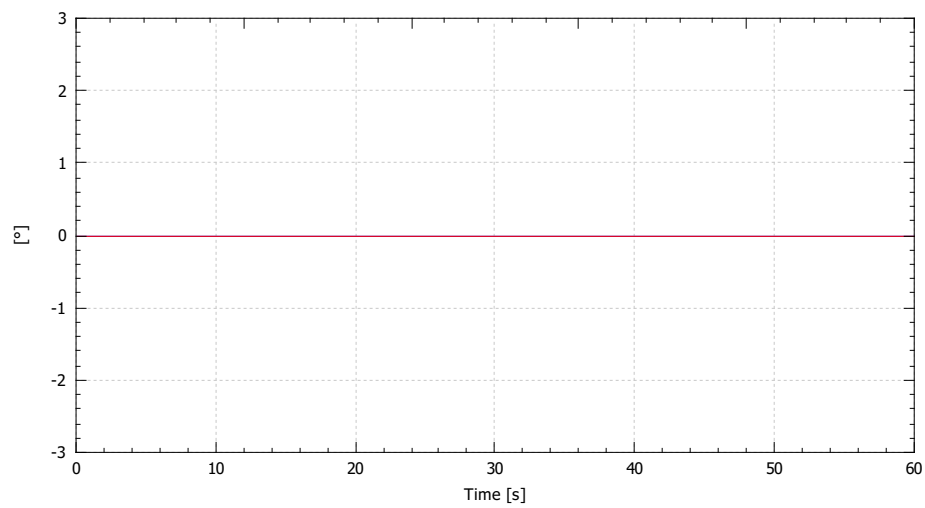




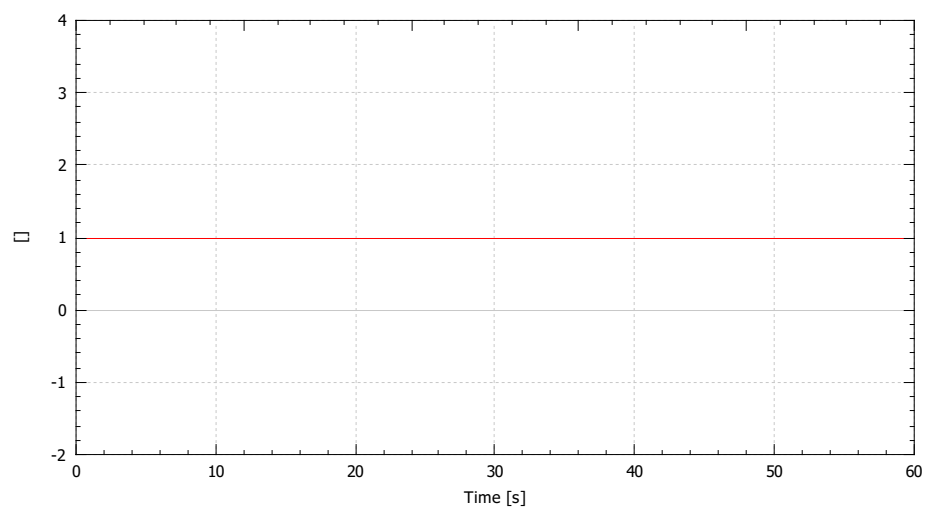
I term

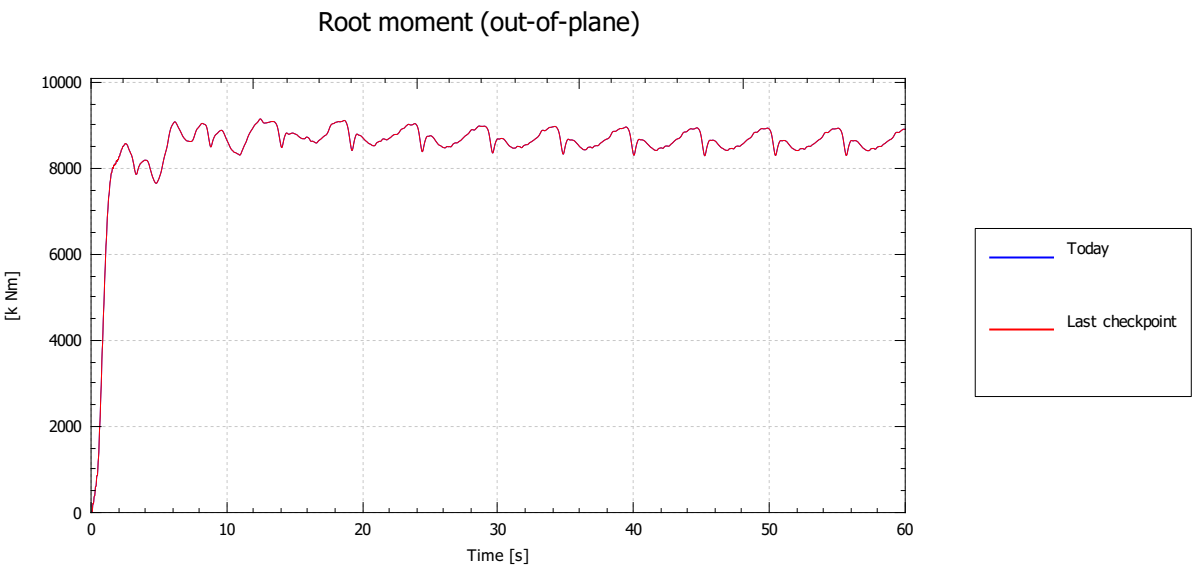
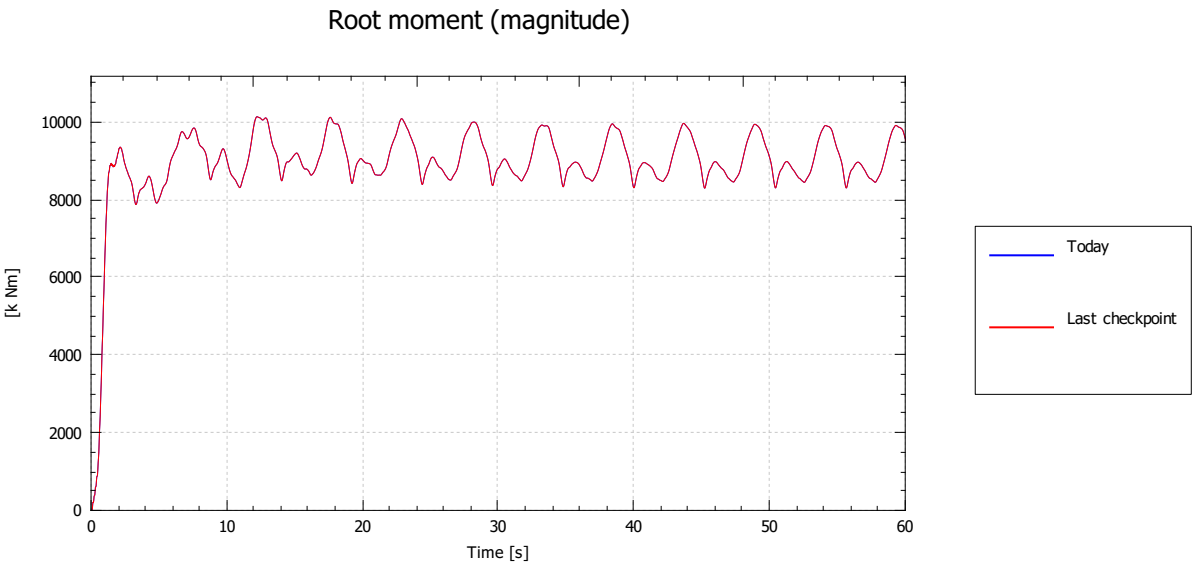
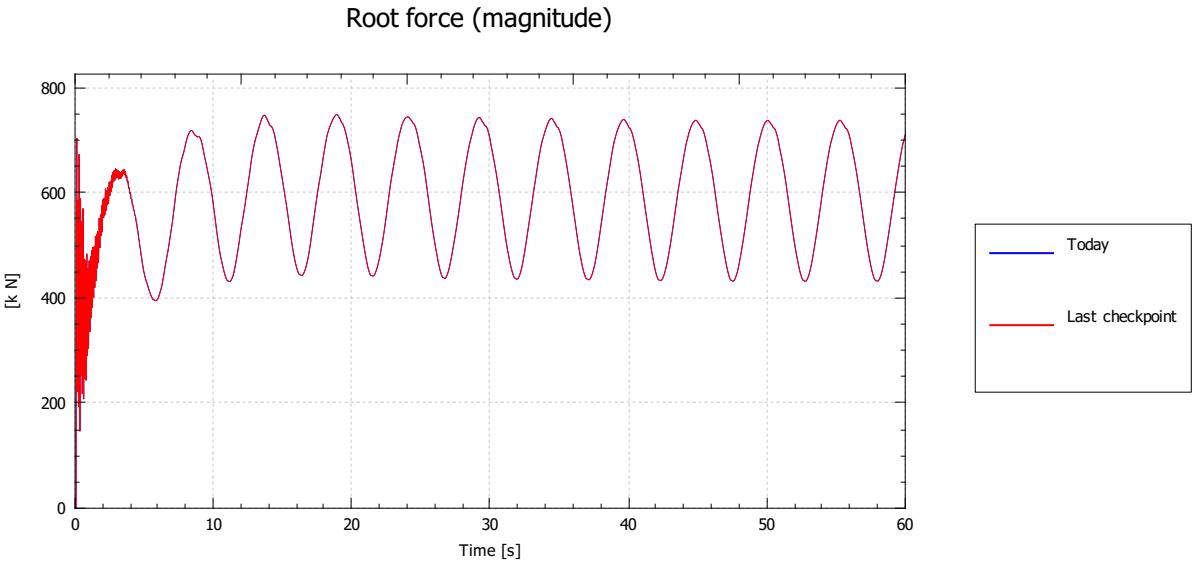


D term

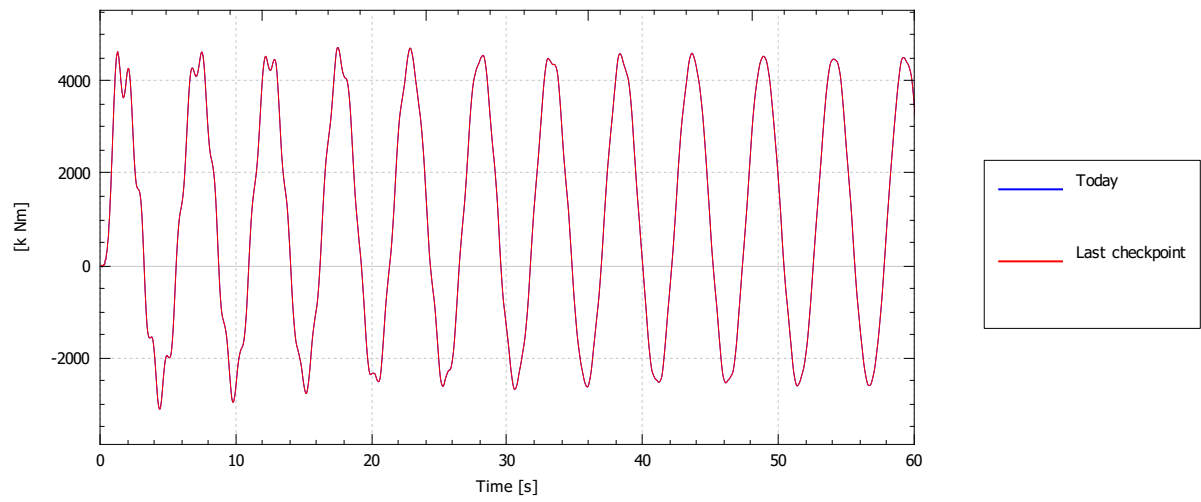


Gain scheduling factor

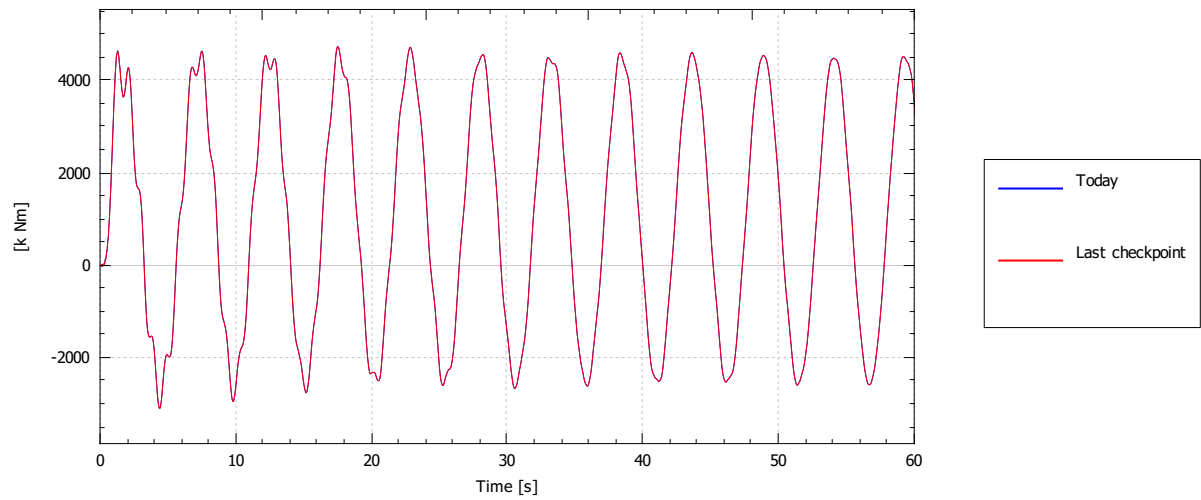




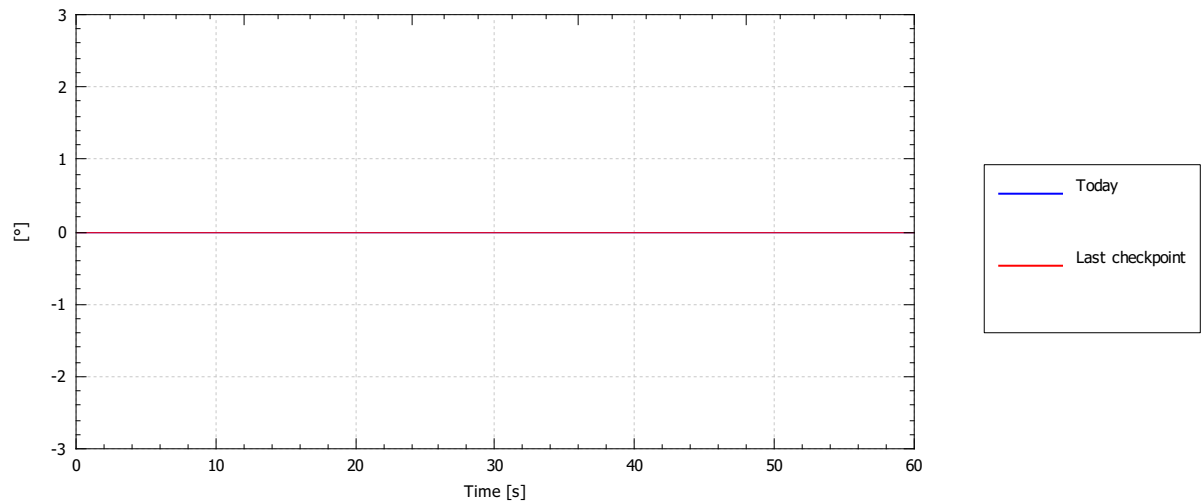
Root moment (in-plane)



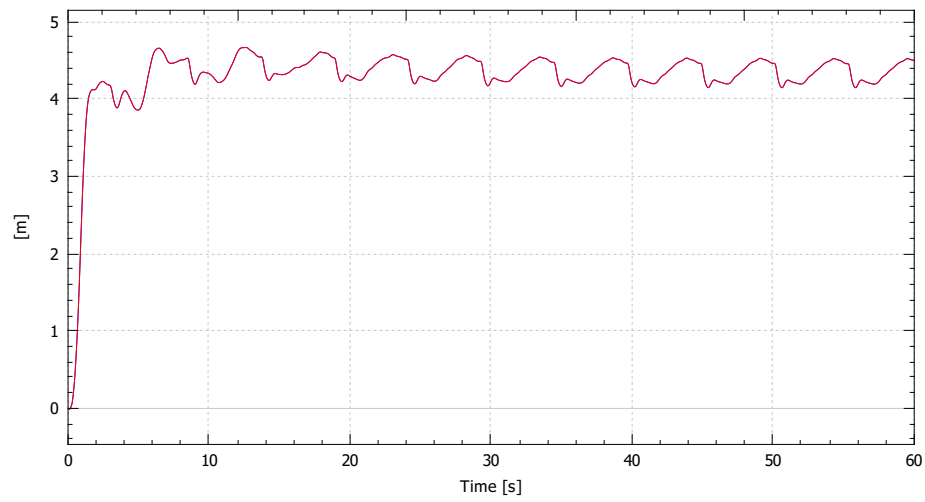
Root moment about shaft



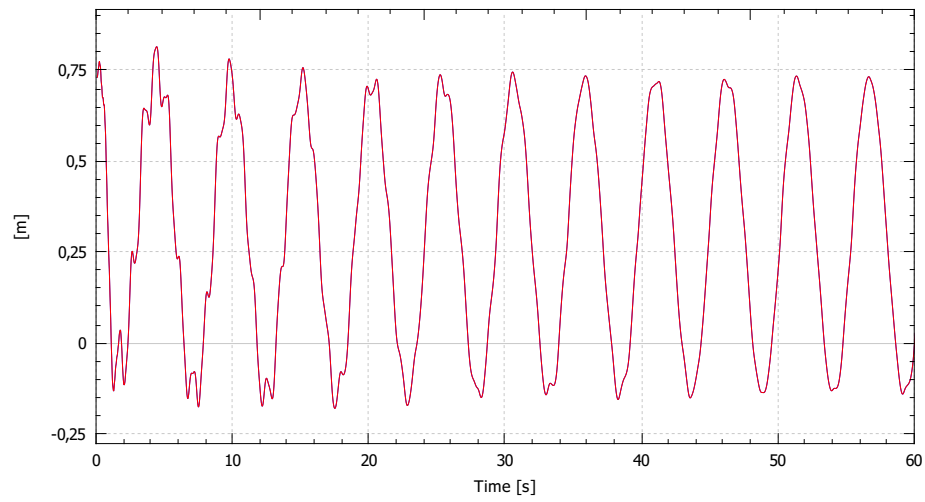
Pitch angle



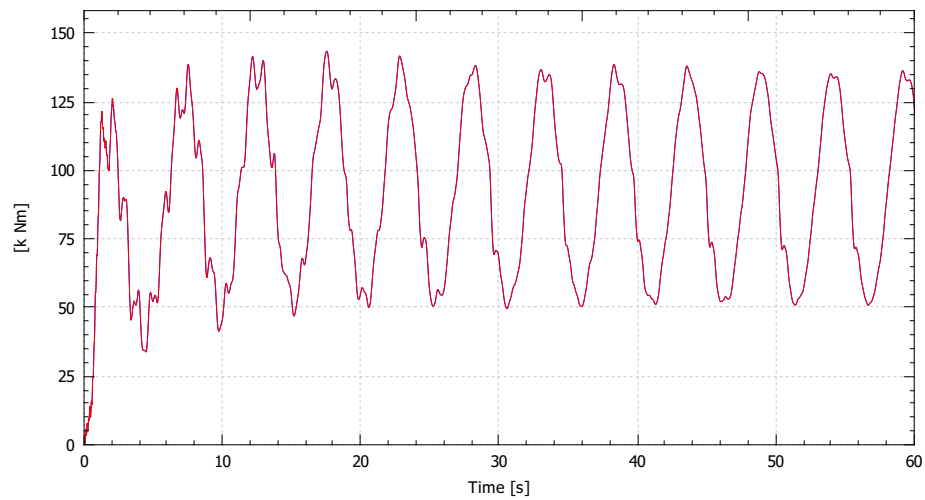
Tip deflection (out-of-plane)

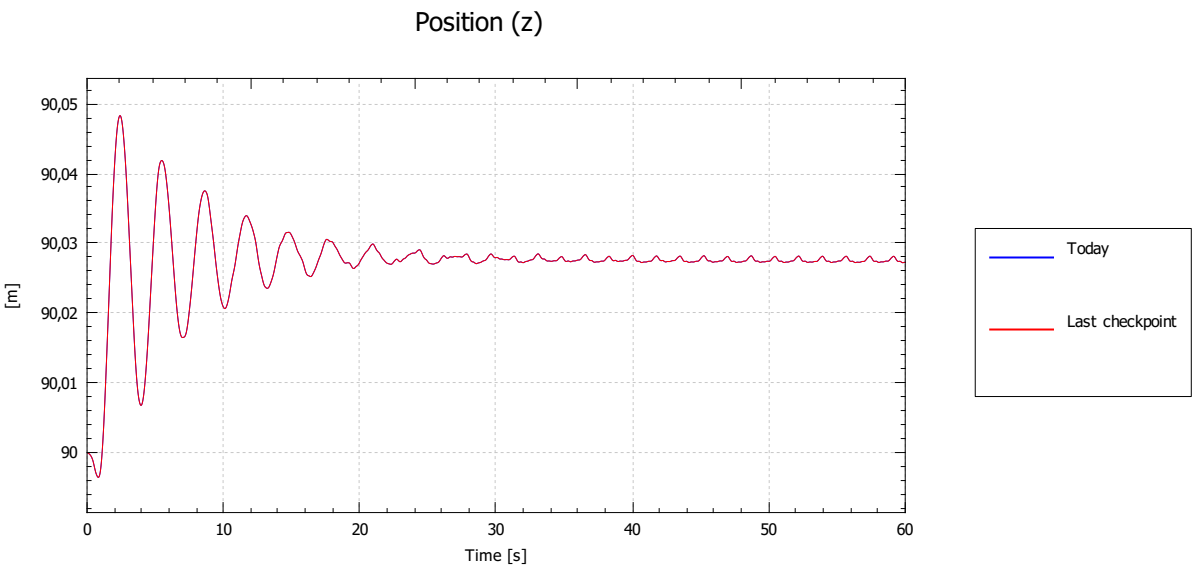
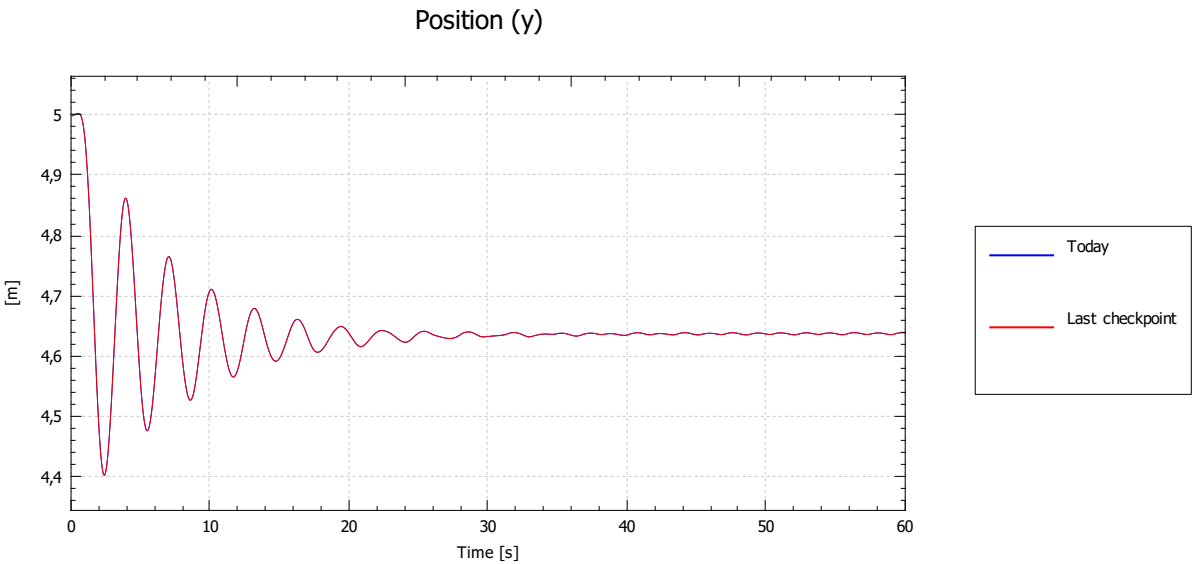
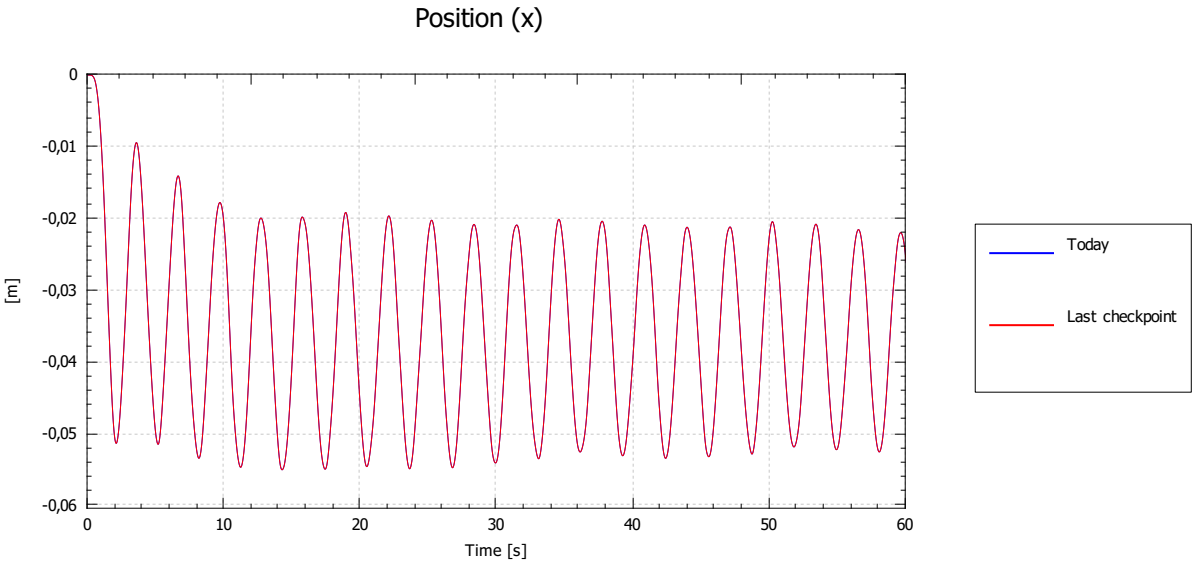


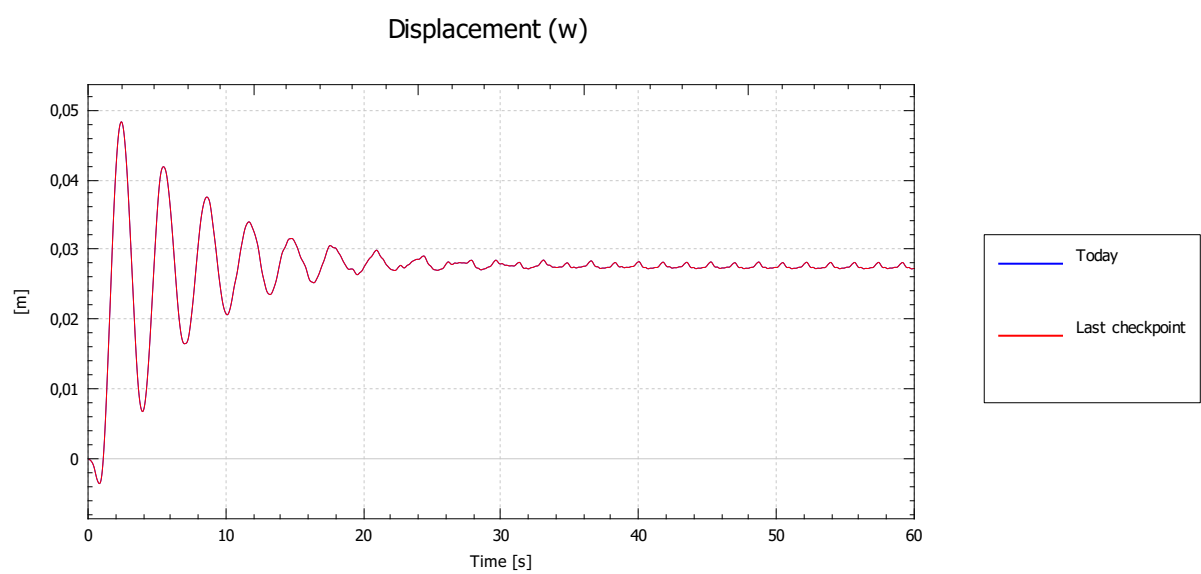
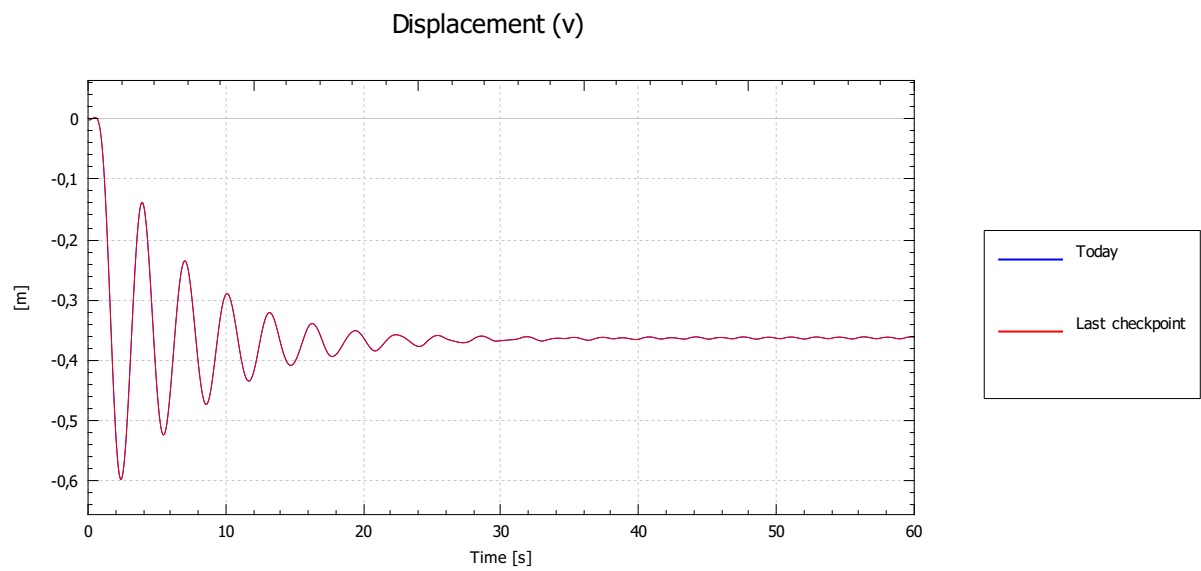
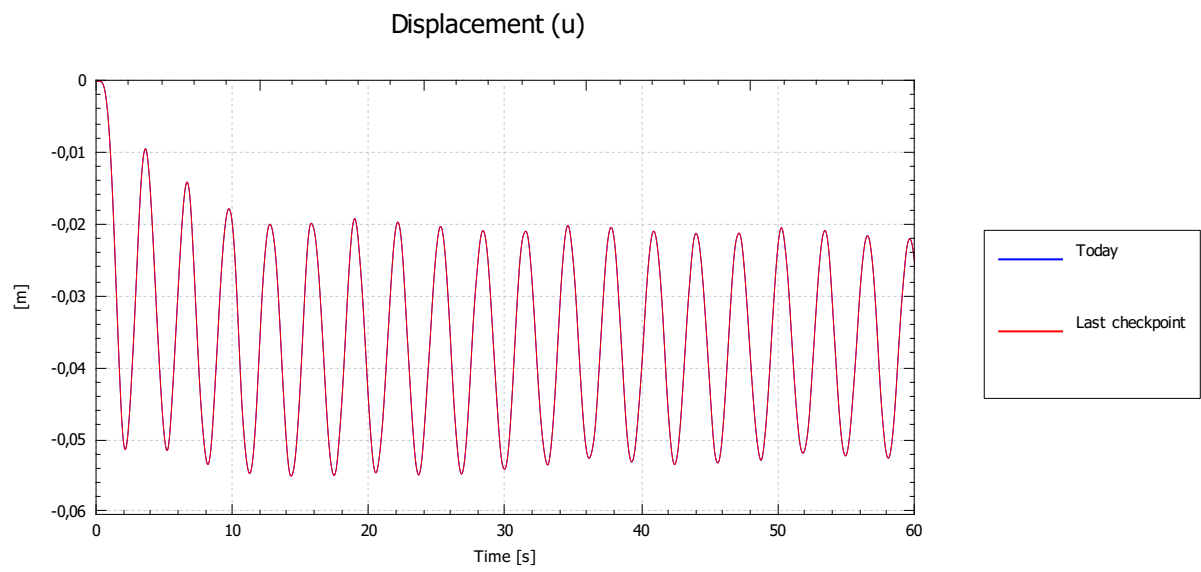
Tip deflection (in-plane)



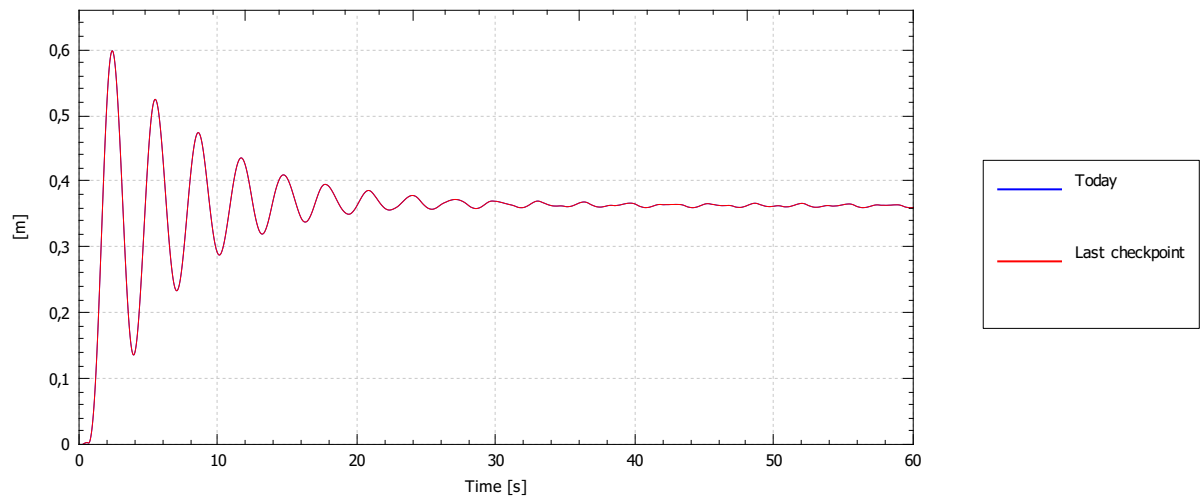
Root torque



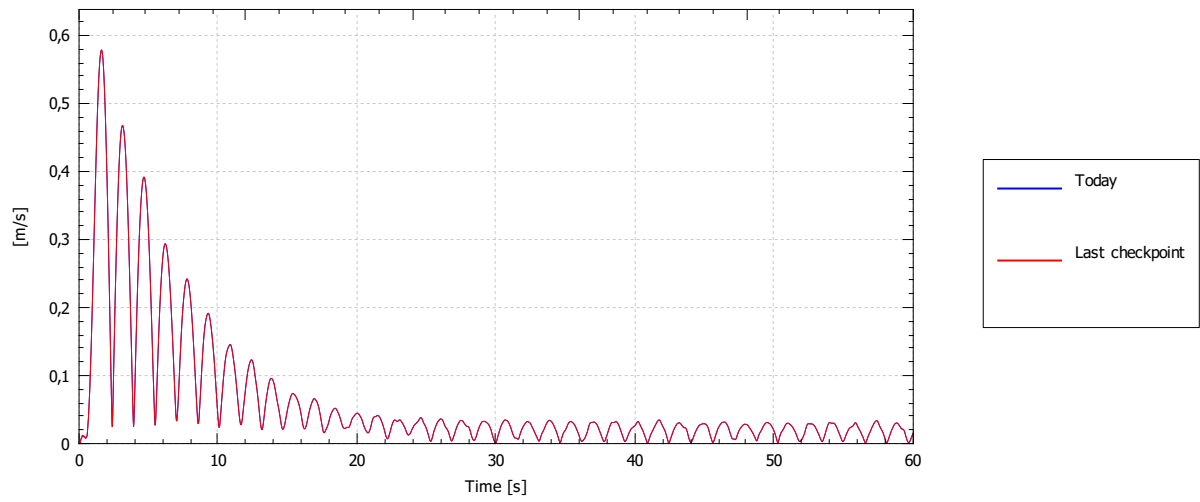




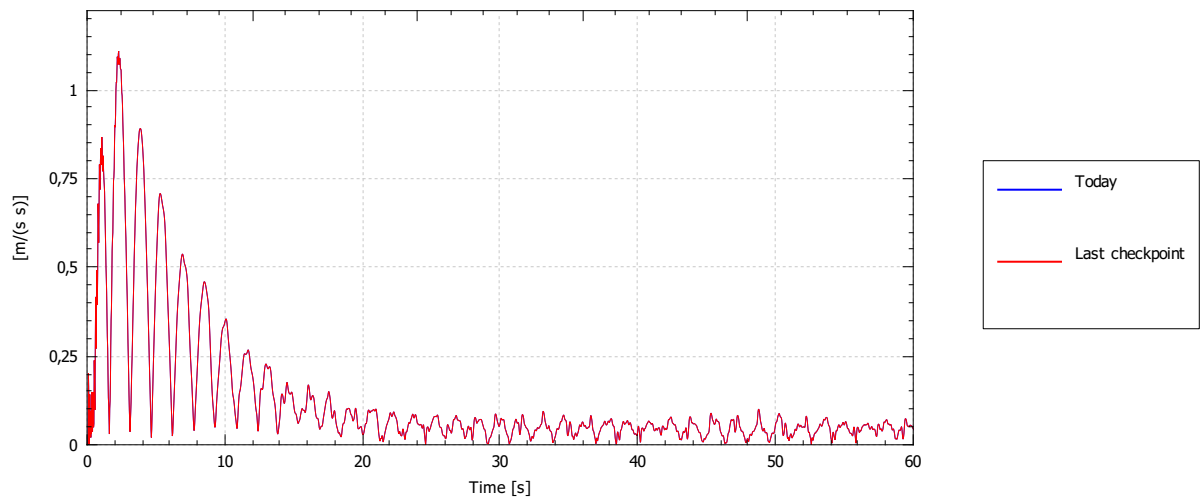
Displacement magnitude



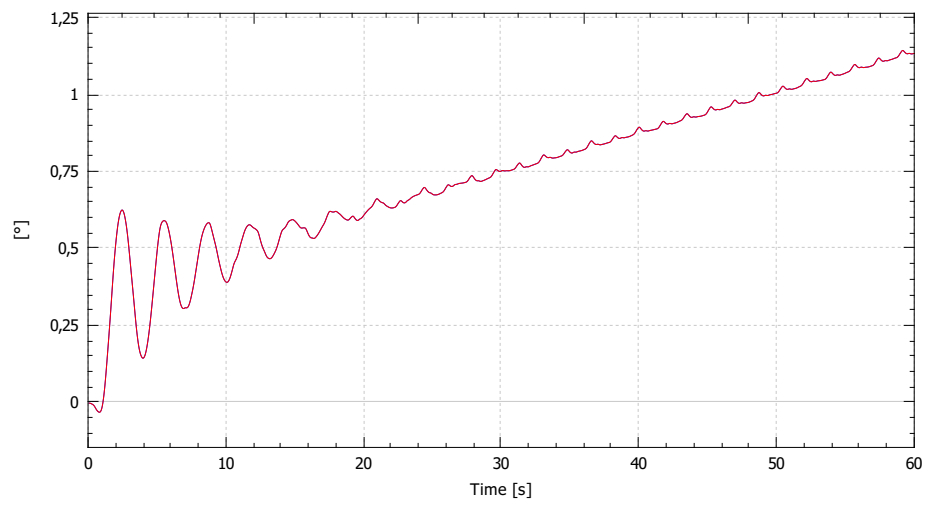
Speed



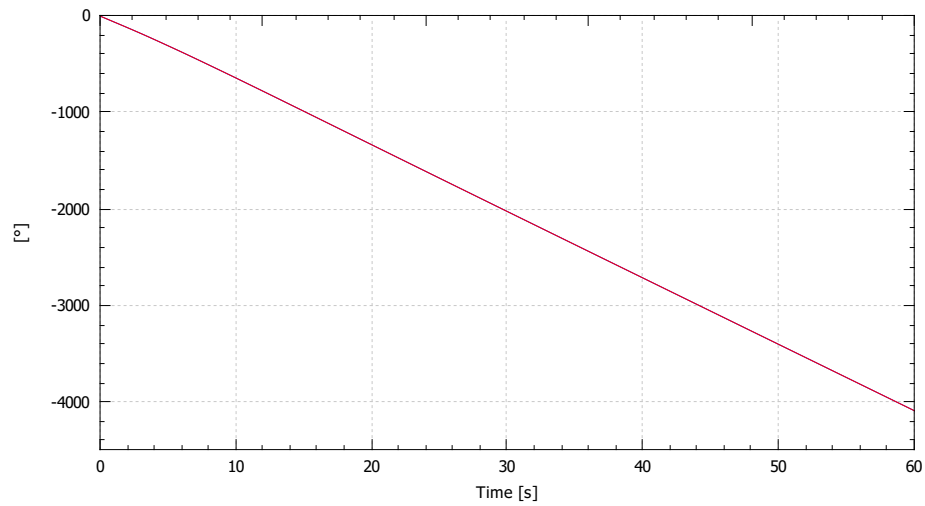
Acceleration, magnitude



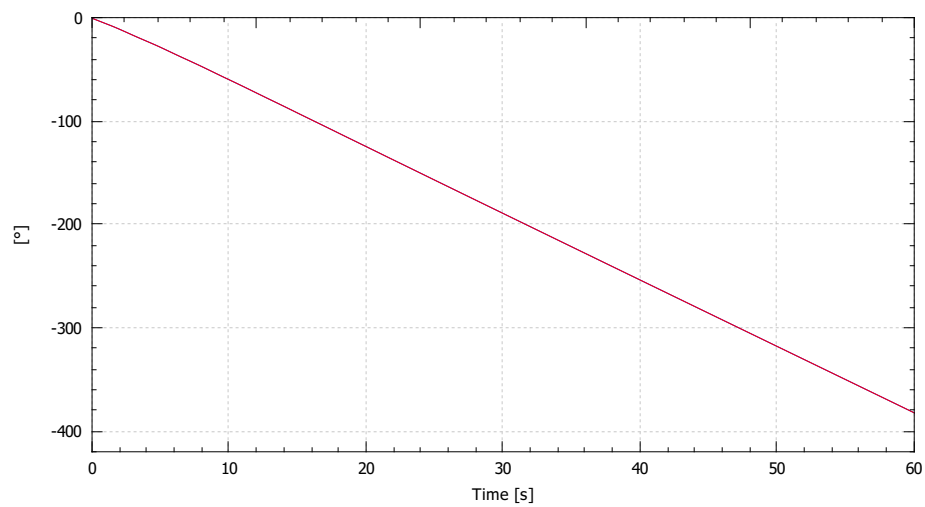
Rotational displacement (ru)



Rotational displacement (rv)

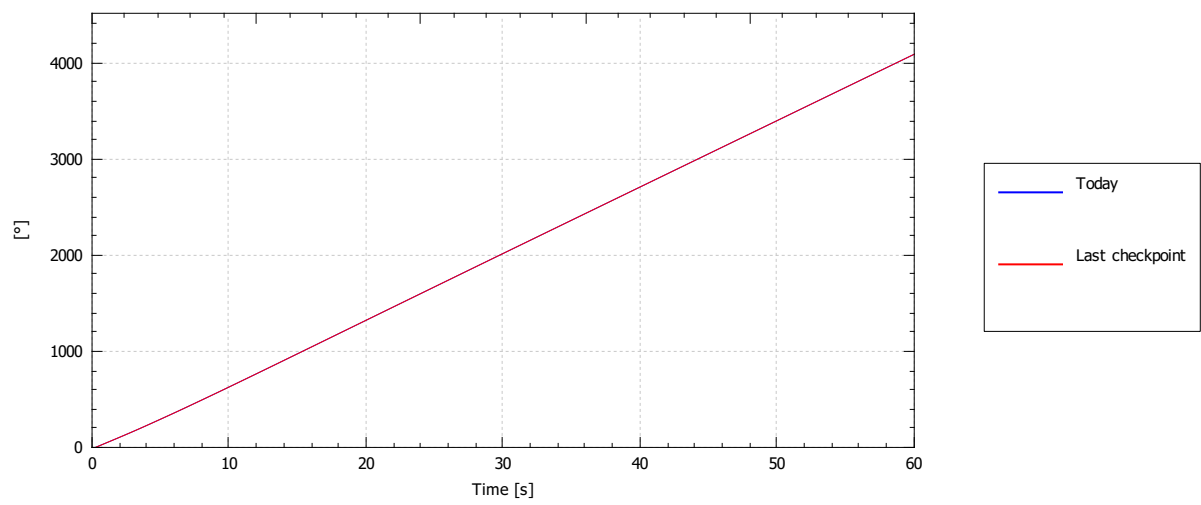


Rotational displacement (rw)

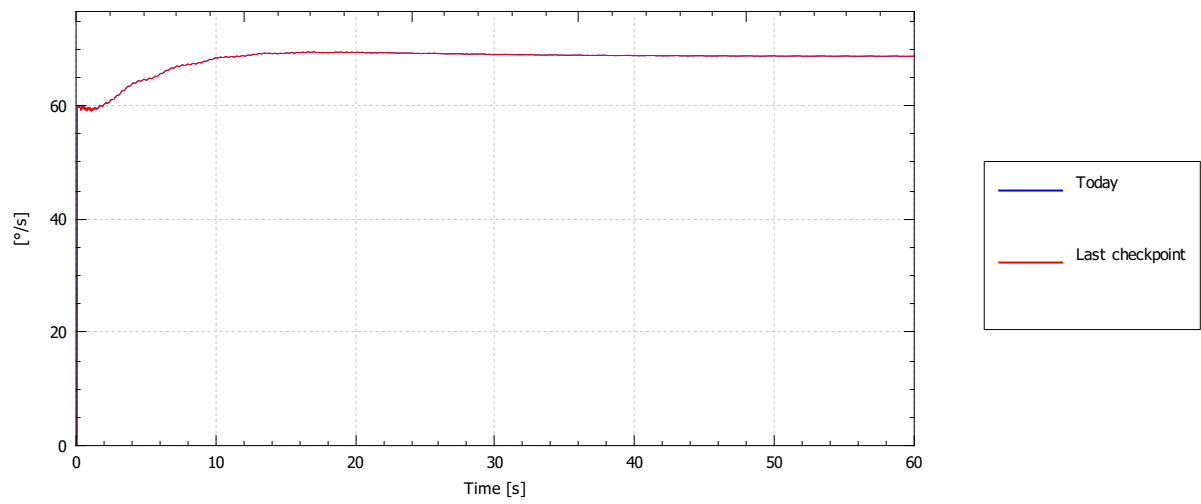




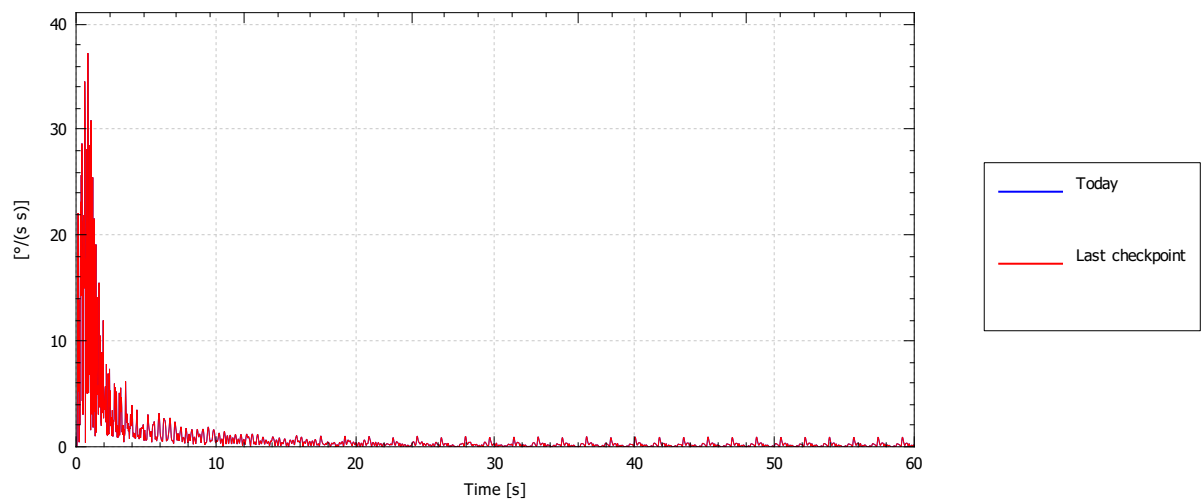
Rotational displacement magnitude



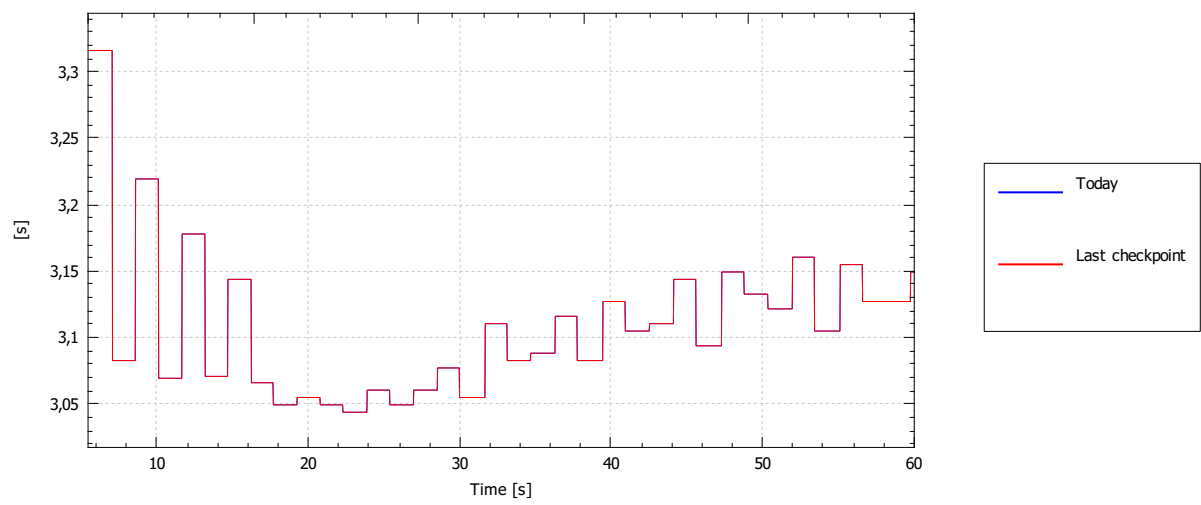
Rotational speed



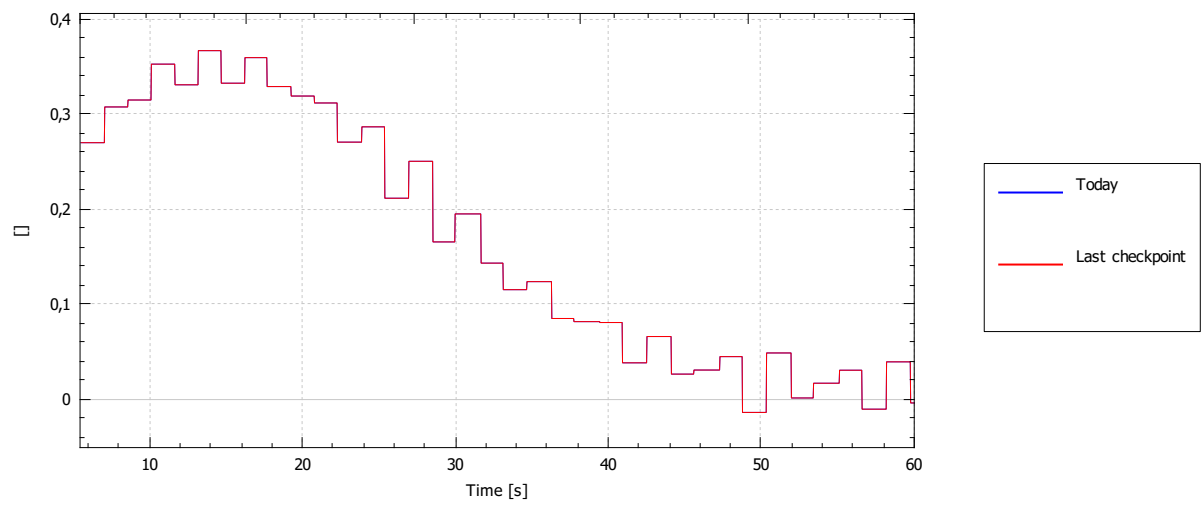
Rotational acceleration mag



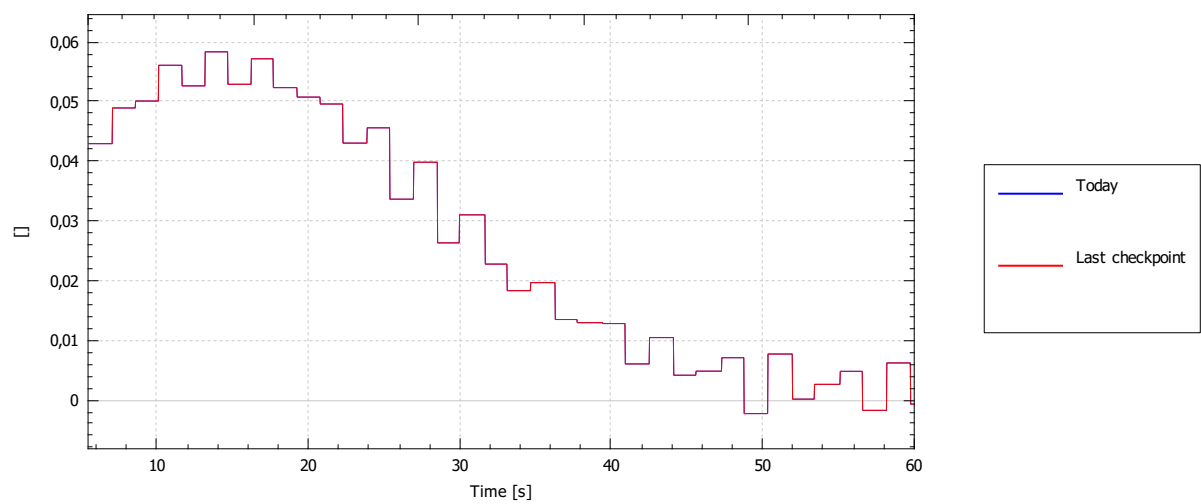
Displacement period



Displacement logarithmic decrement

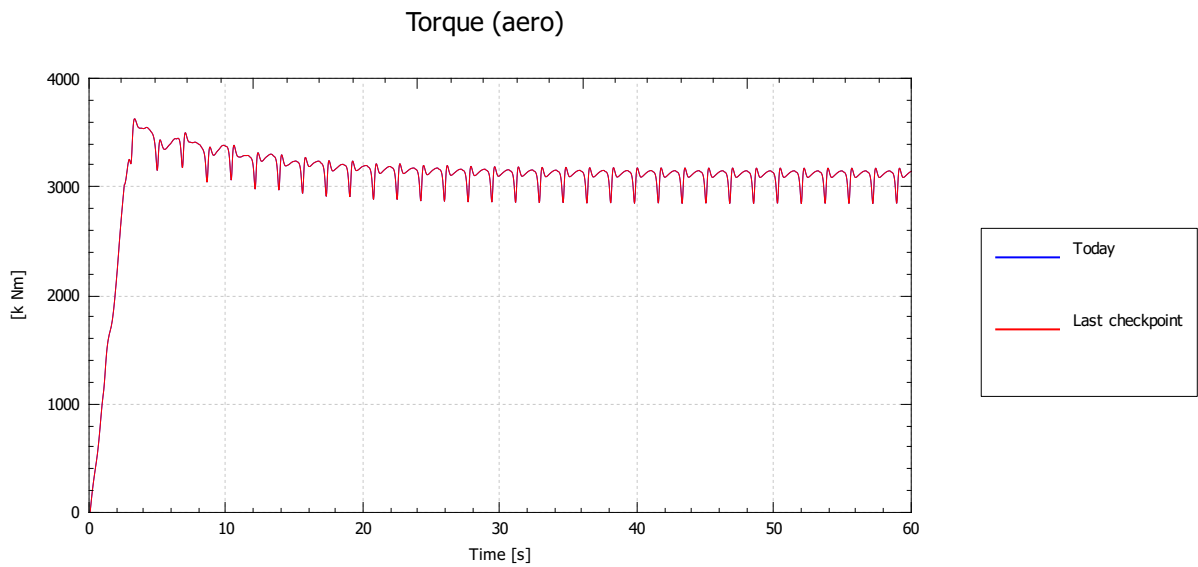
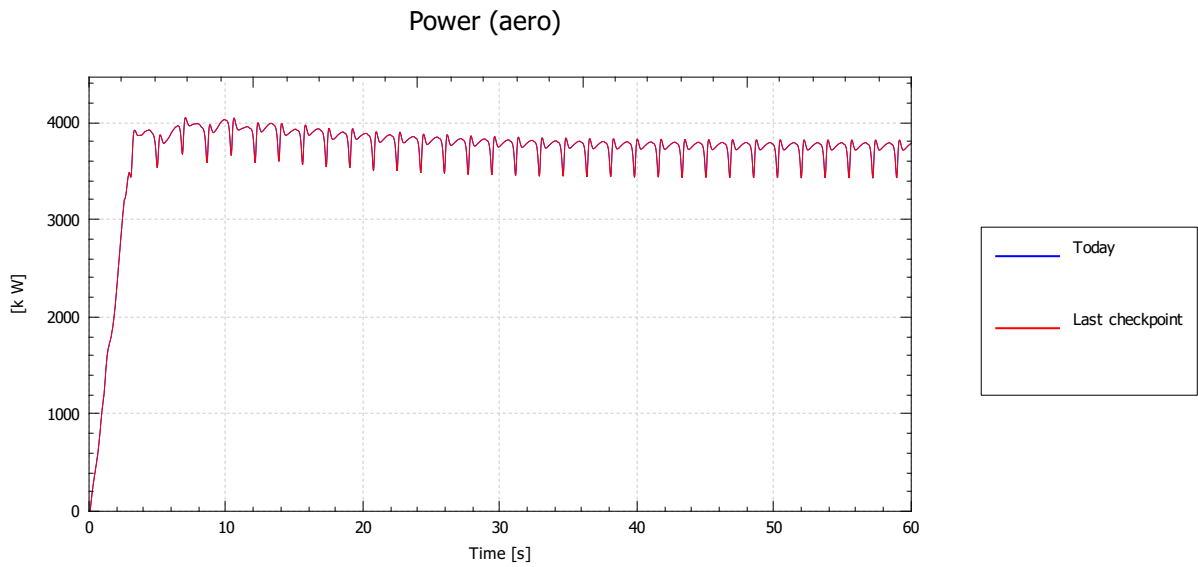


Displacement damping ratio

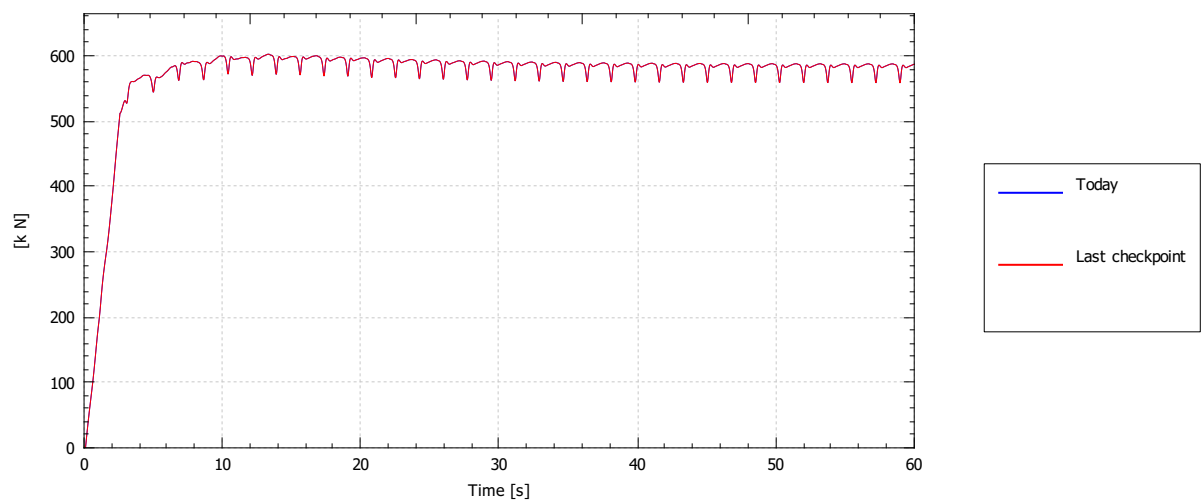


Load case: Curve linear

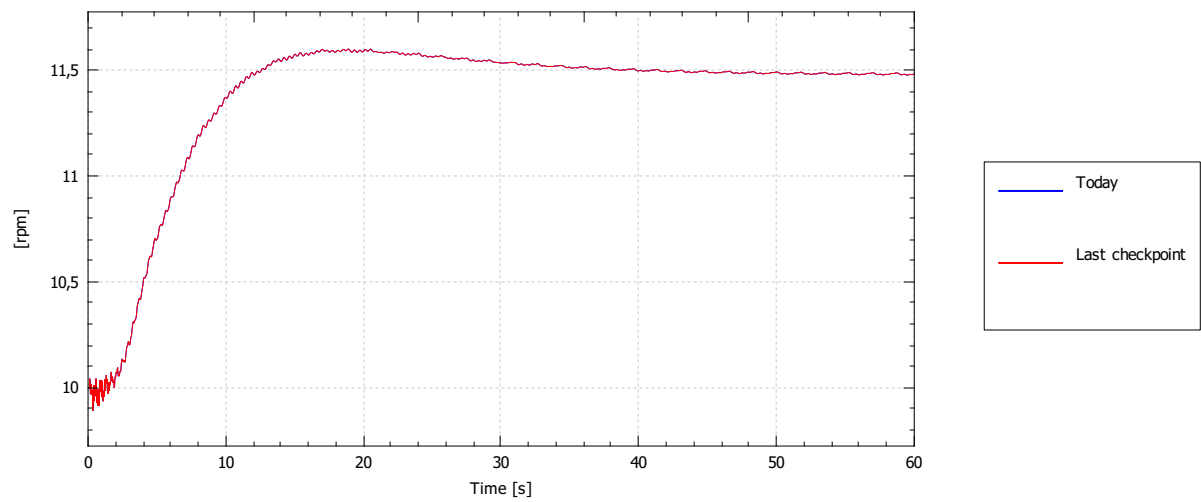
Rotor



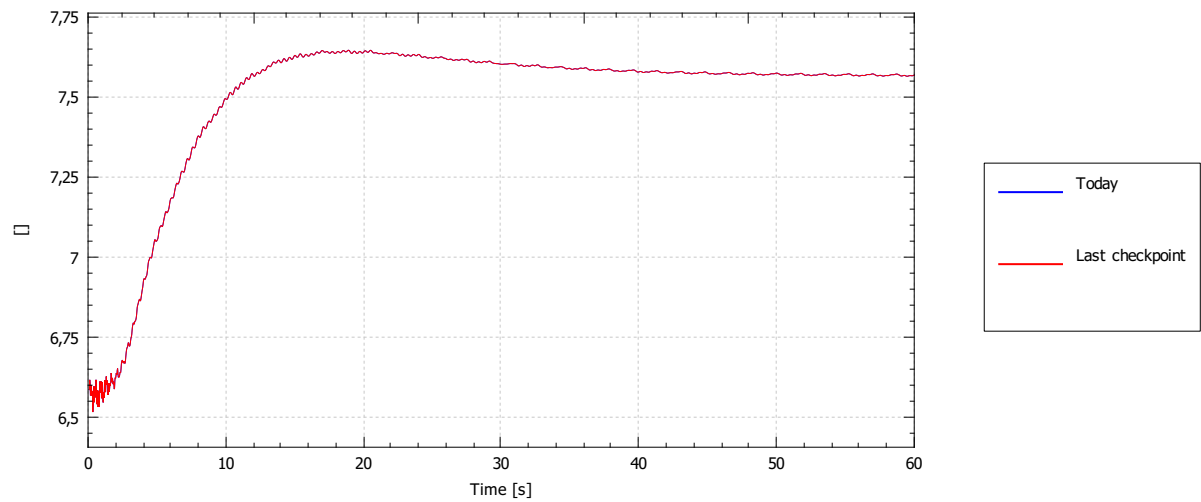
Thrust (aero)



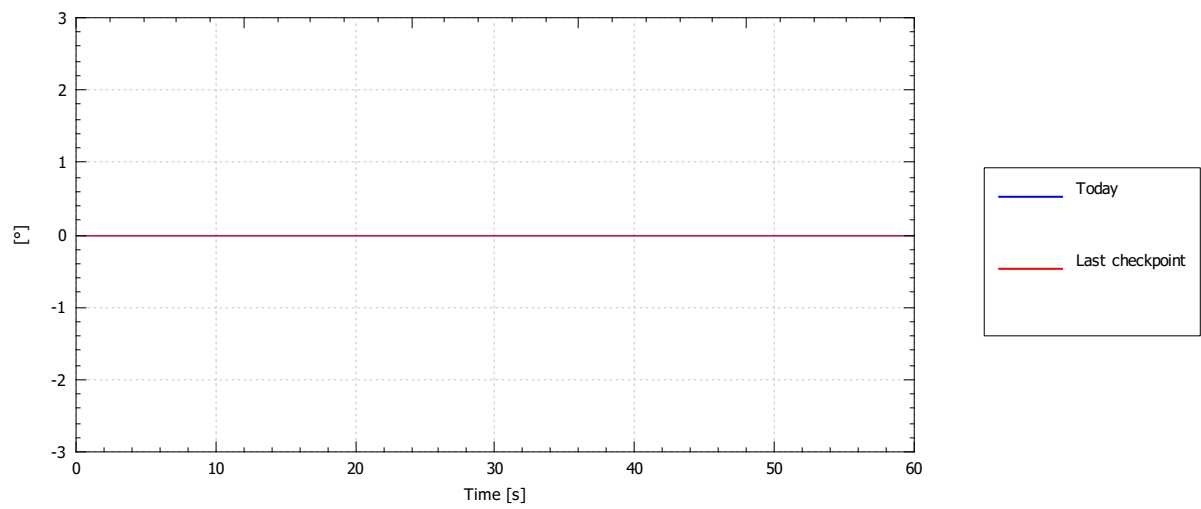
RPM



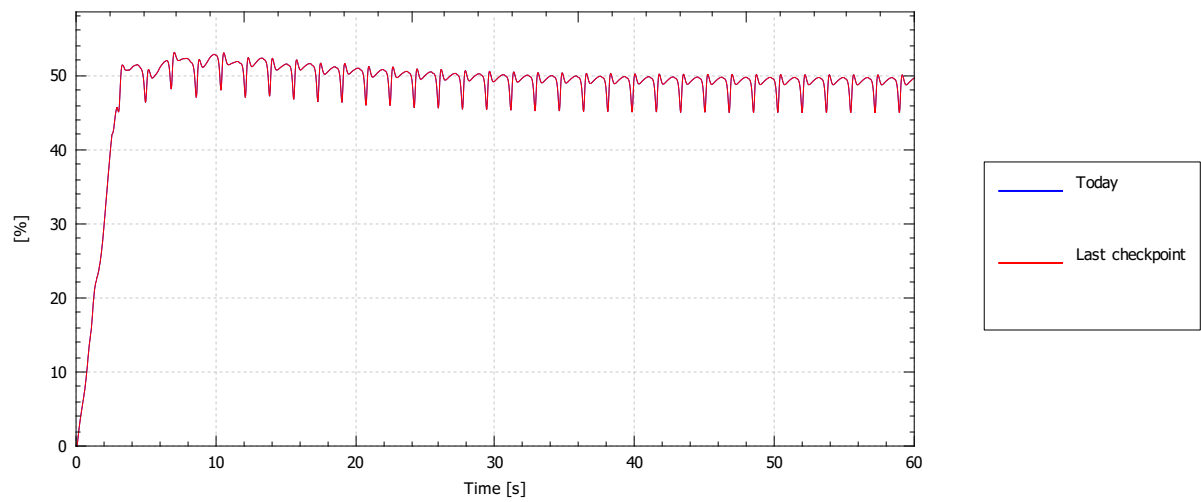
TSR



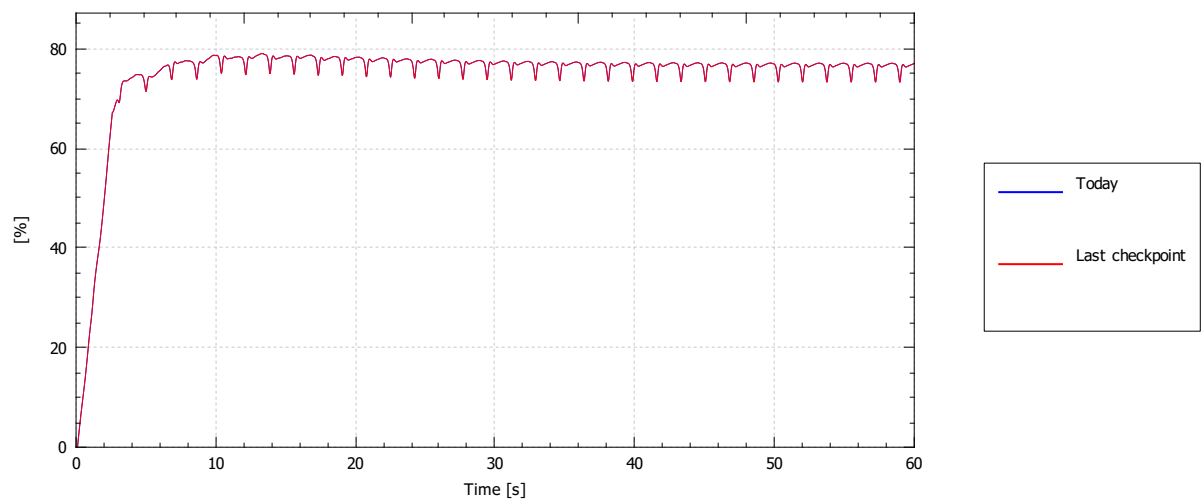
Representative demanded pitch angle



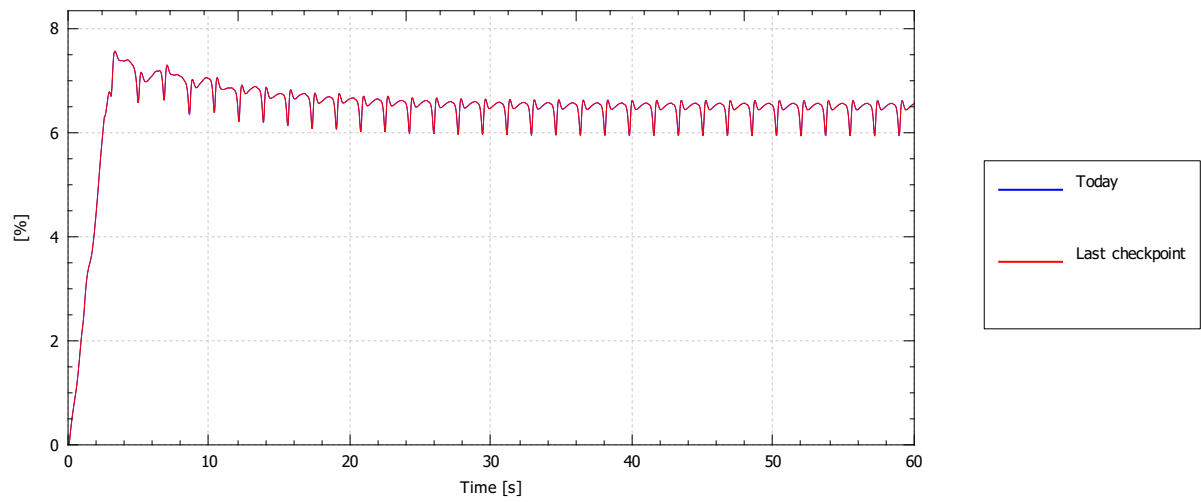
Power coef. (CP)



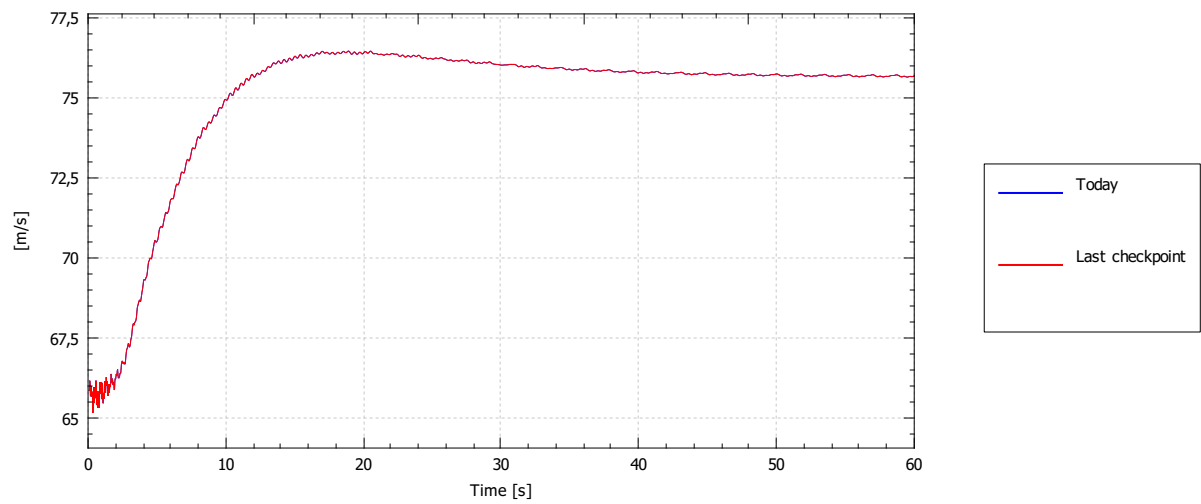
Thrust coef. (CT)



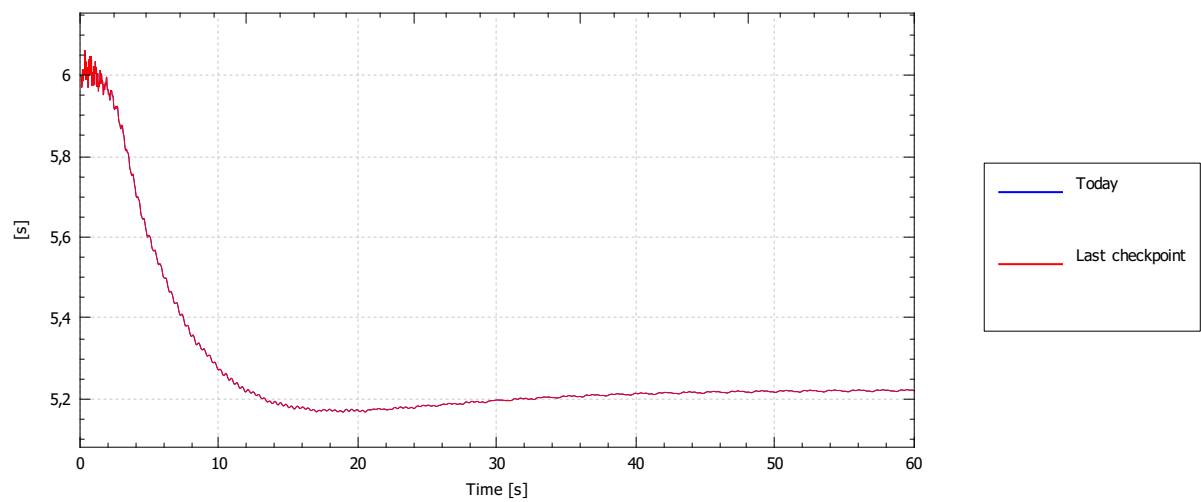
Torque coef. (CQ)



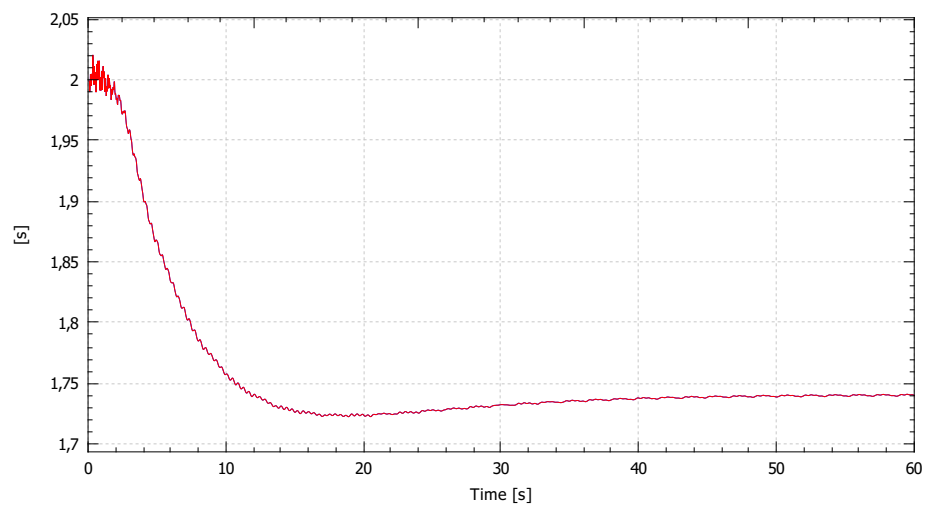
Tip speed



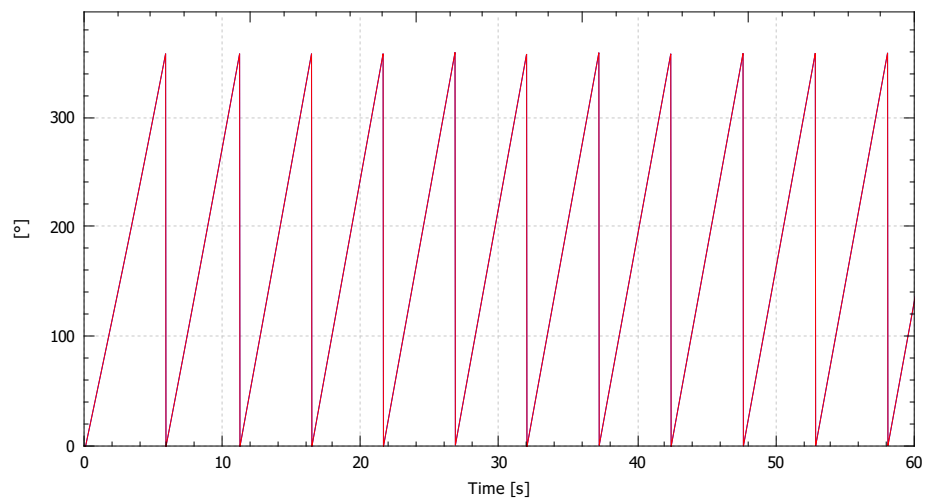
1P (one revolution)



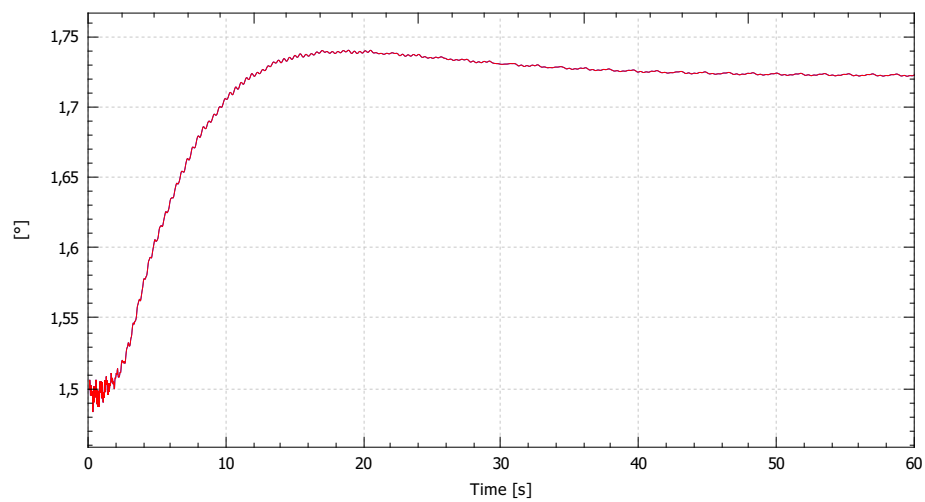
nP (blade passing)



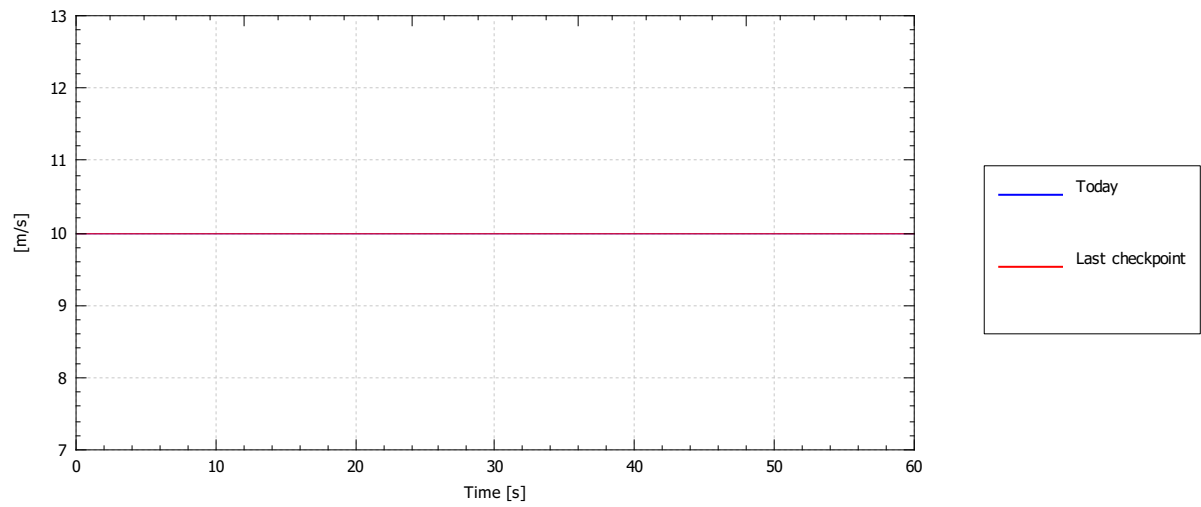
Azimuth angle



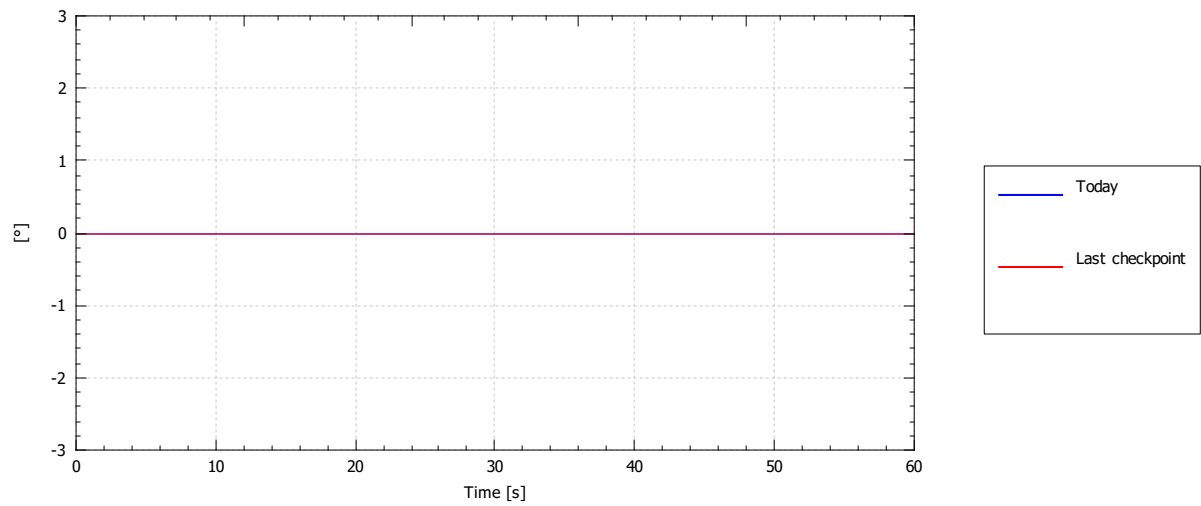
Rotation per timestep



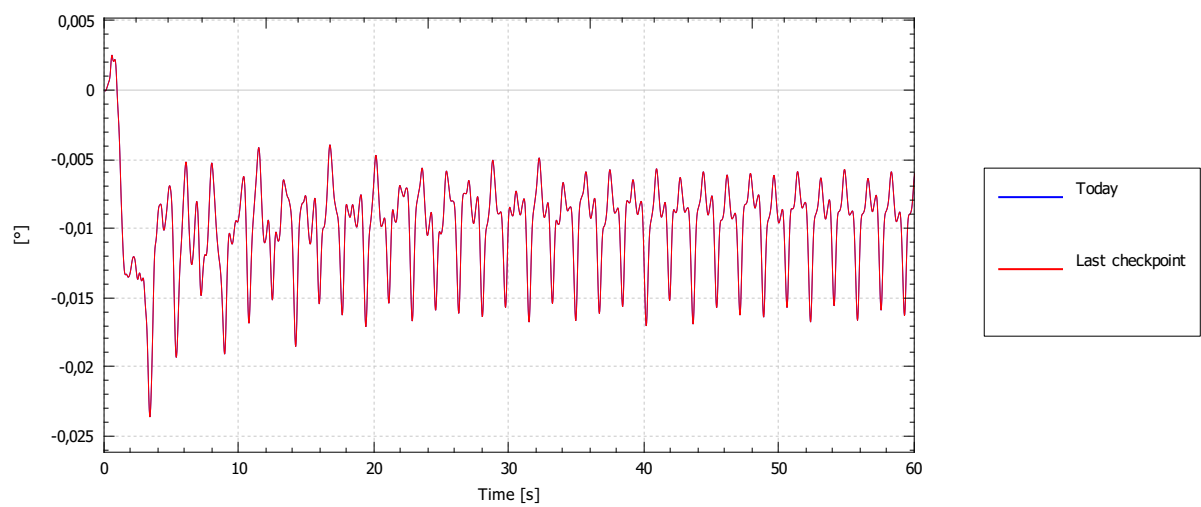
Wind speed at hub, magnitude



Wind angle at hub

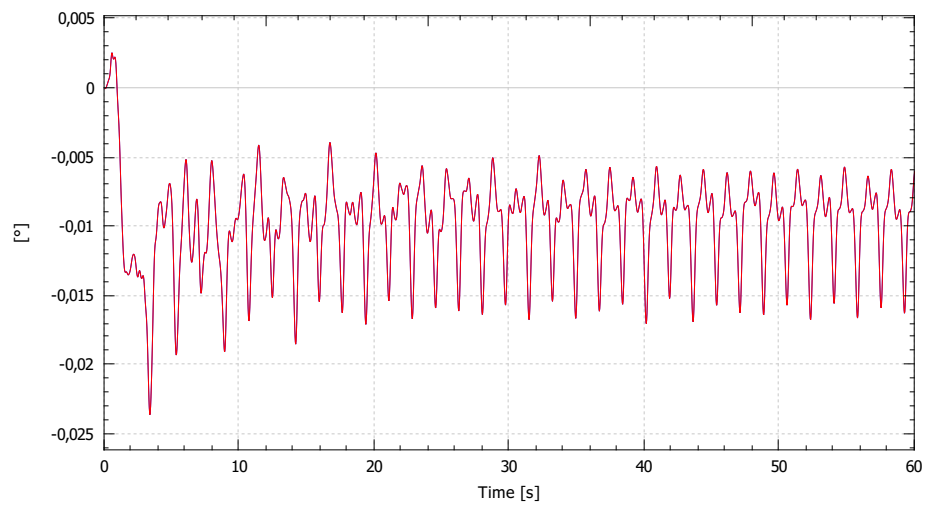


Yaw angle relative to forward

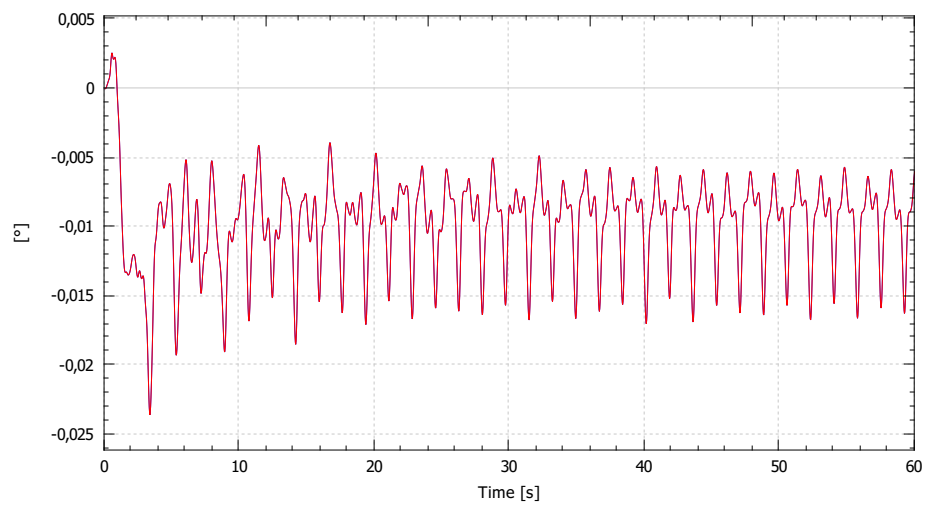




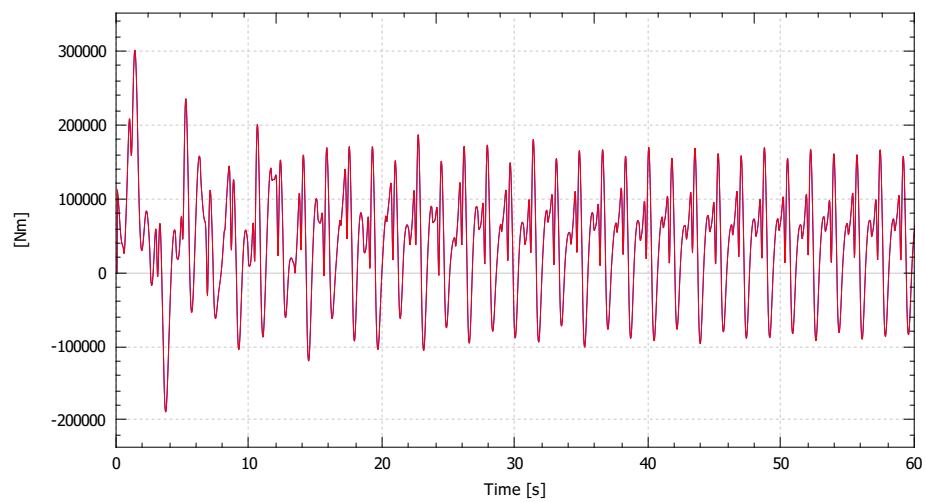
Yaw angle to reference direction



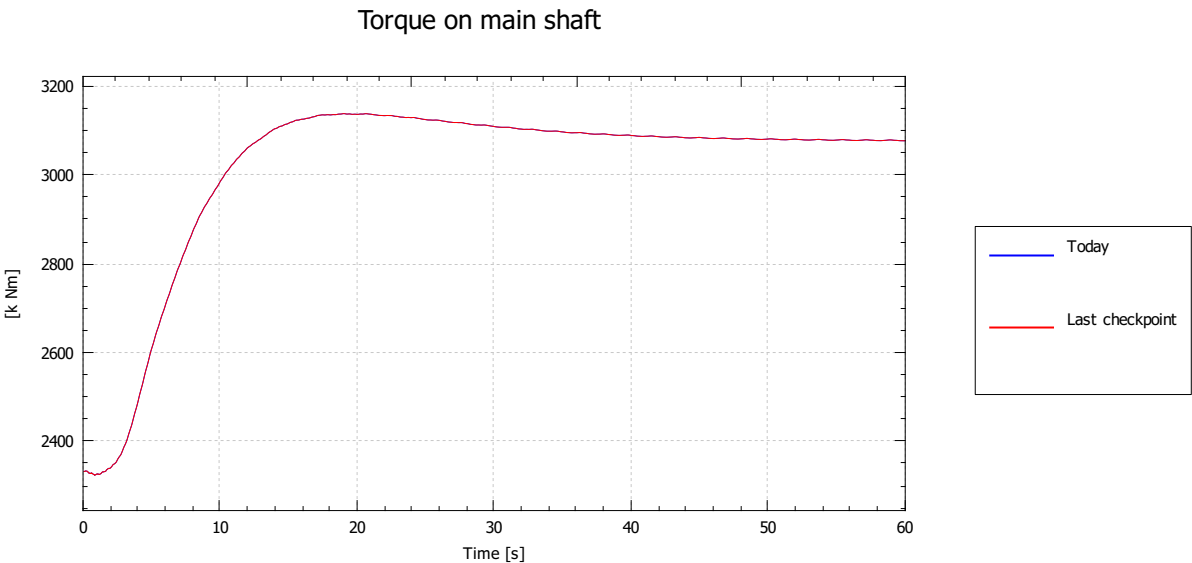
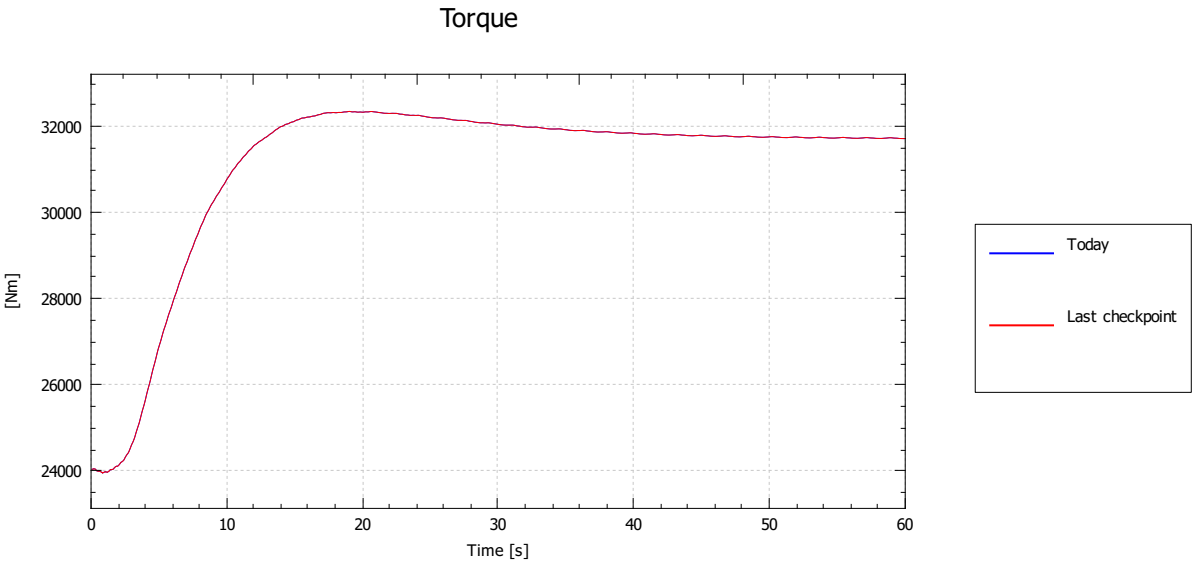
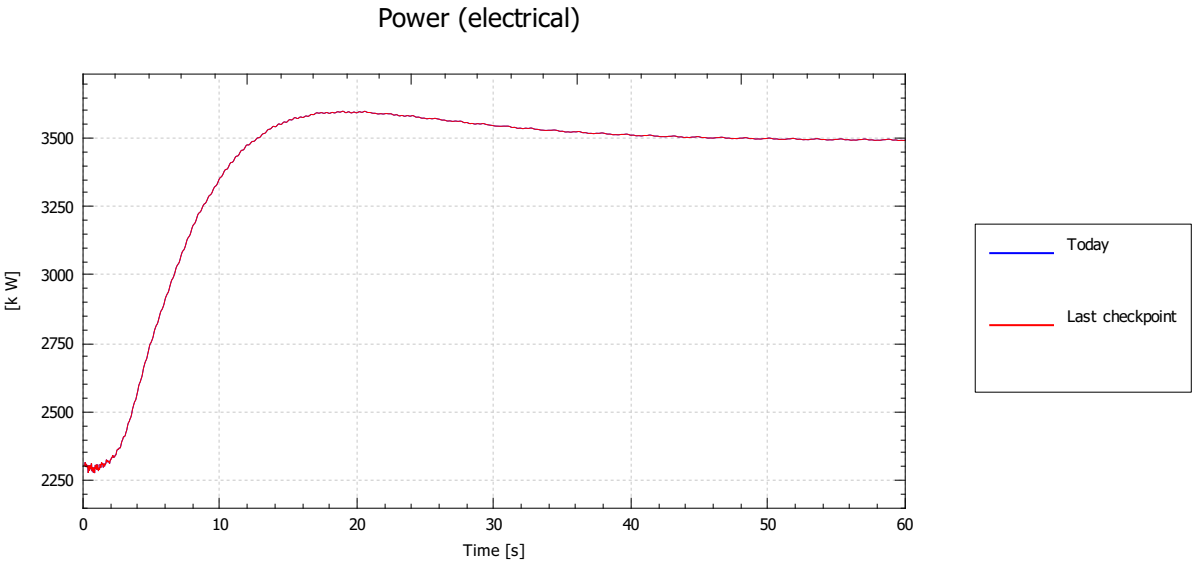
Yaw error



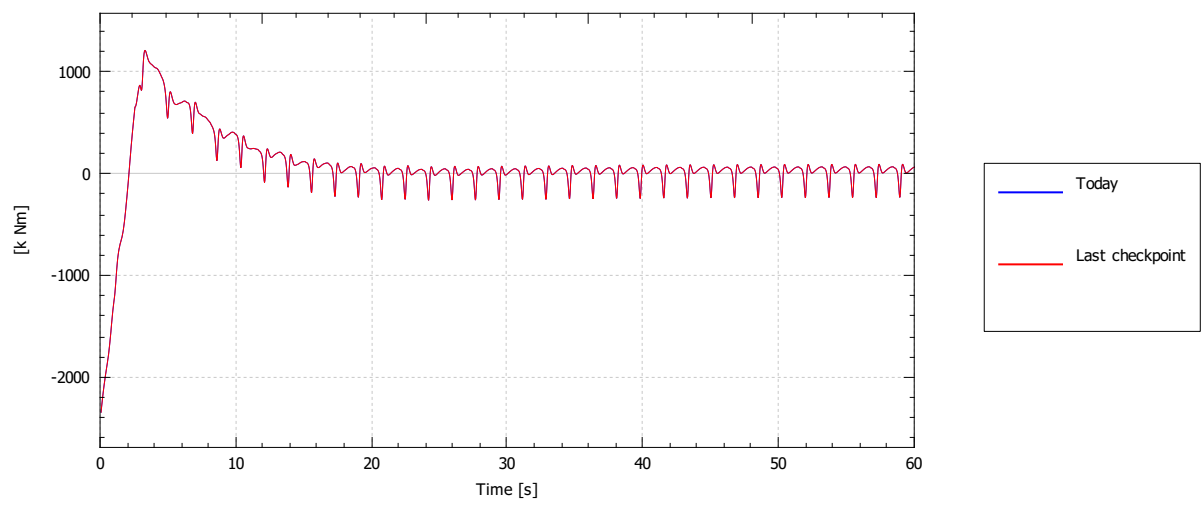
Torque about yaw axis



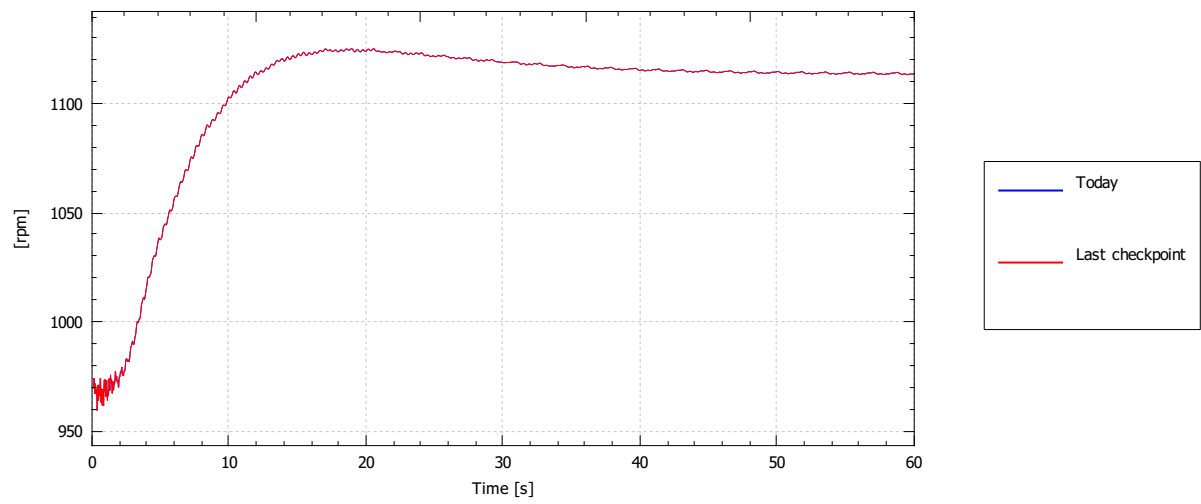
Generator



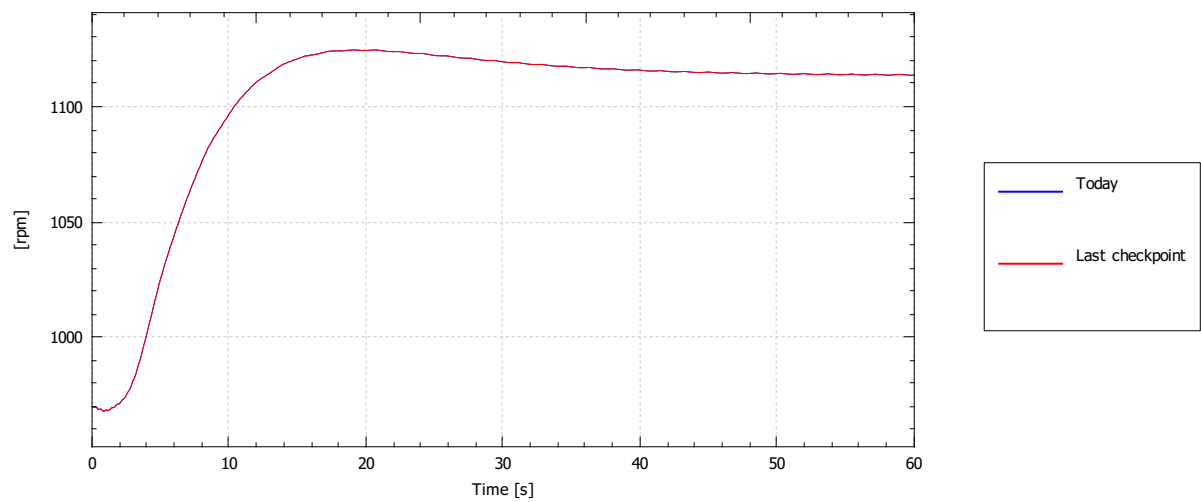
Torque diff. on main shaft



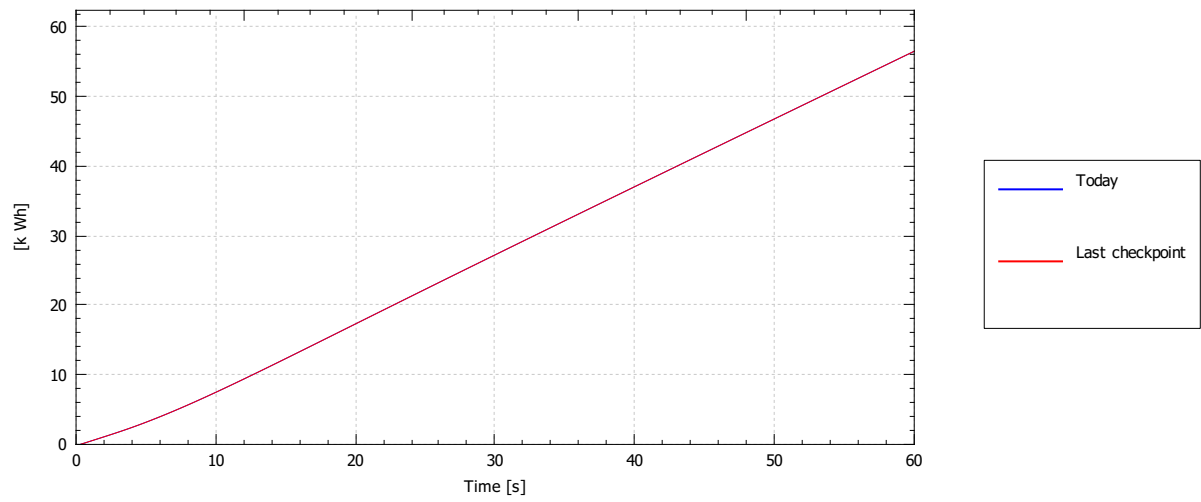
RPM



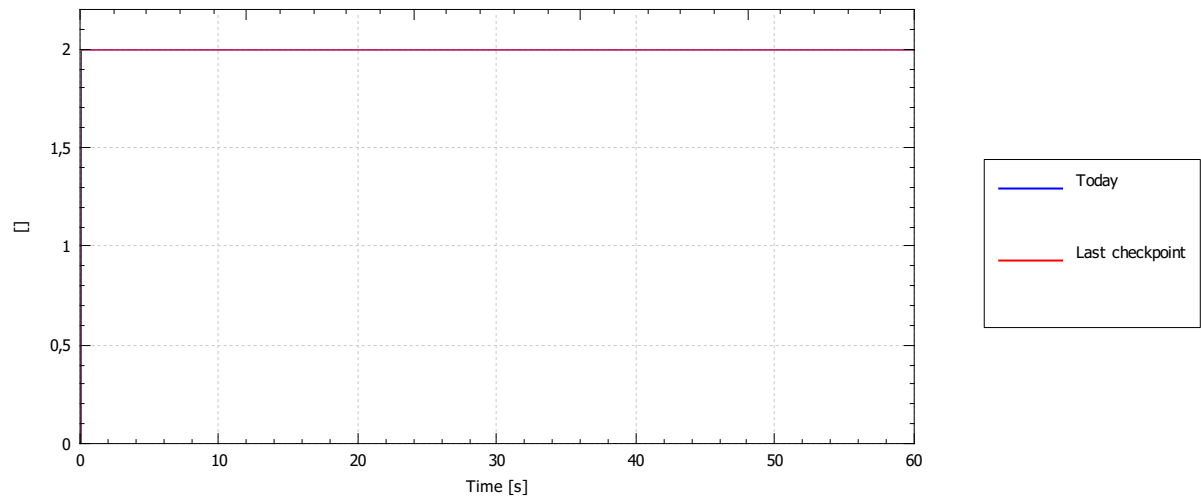
Filtered RPM



### Electricity production

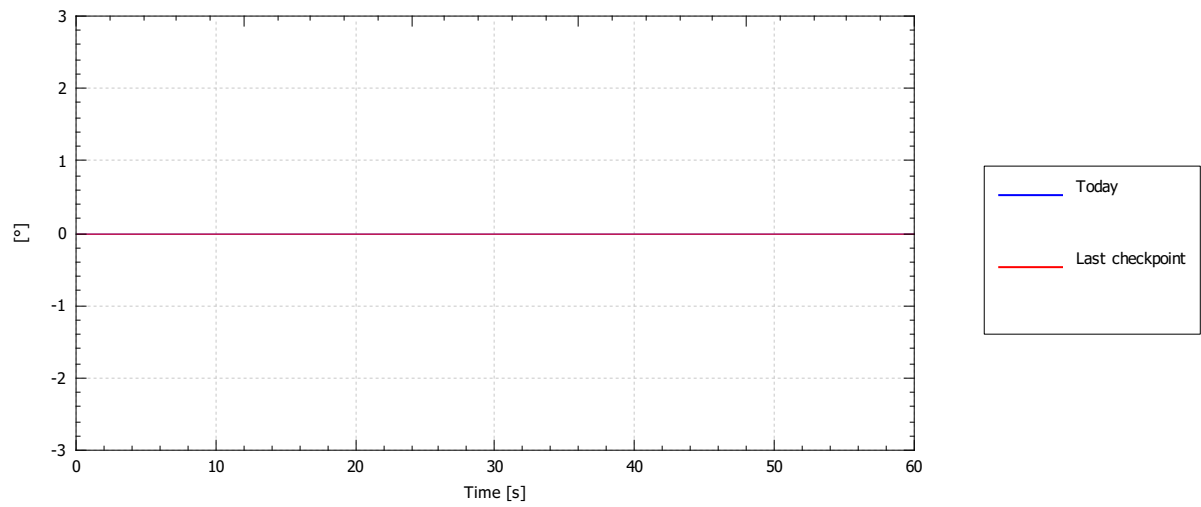


### Region

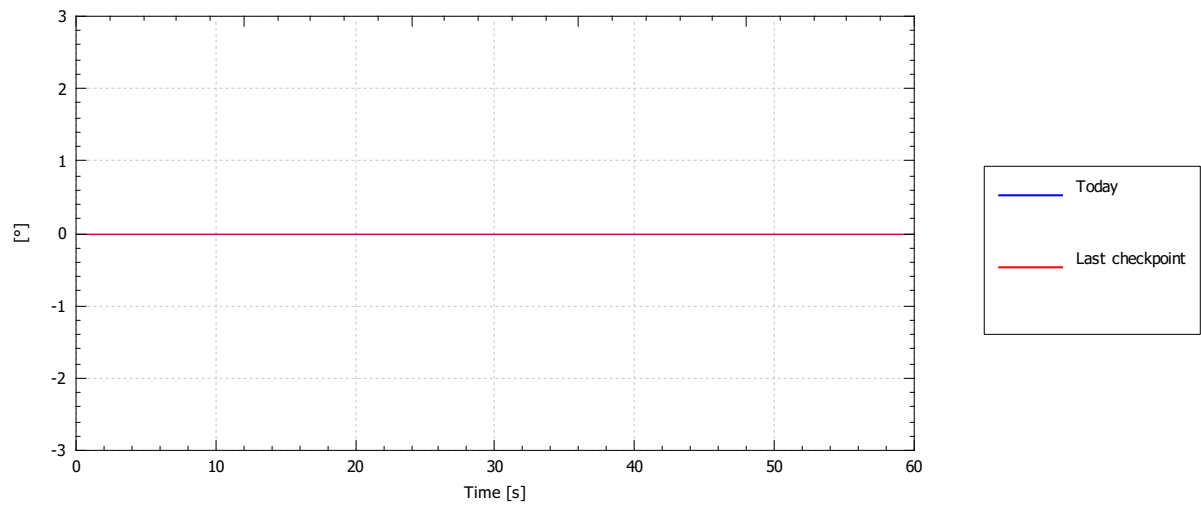


### Demanded pitch controller

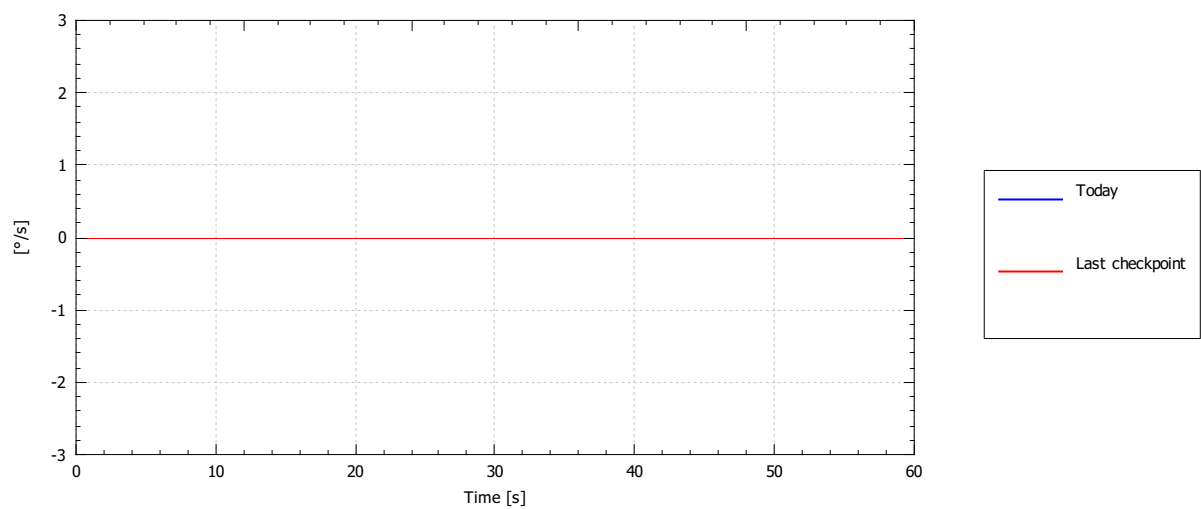
Demanded collective pitch angle



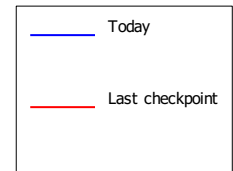
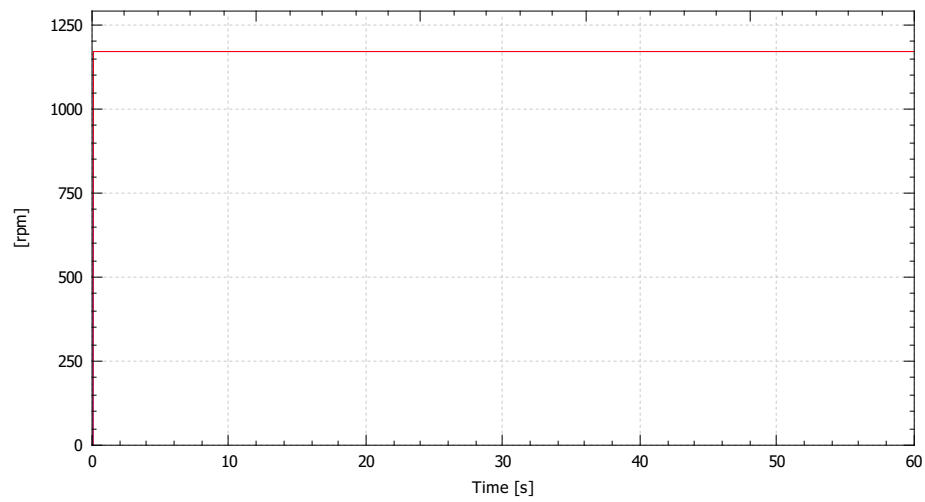
Cumulative demanded collective pitch angle



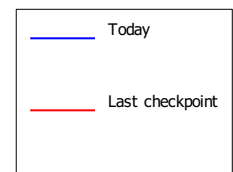
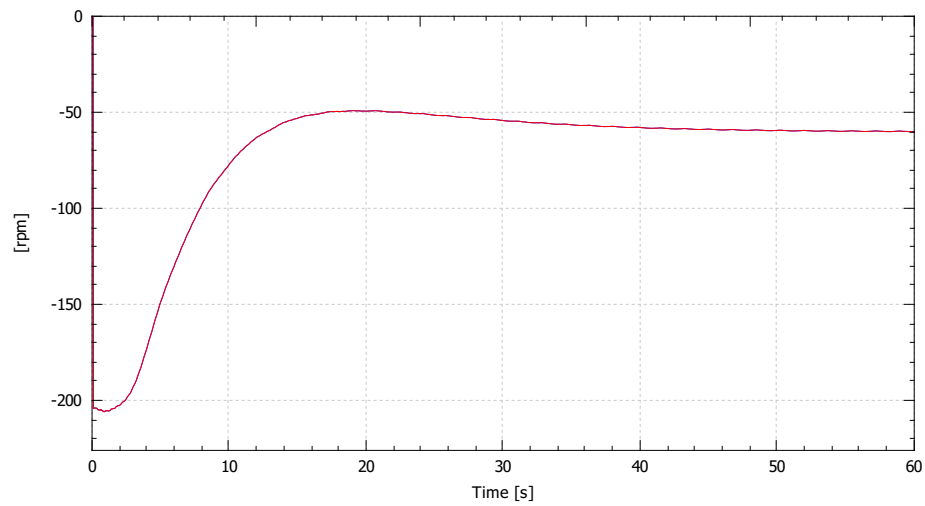
Demanded collective pitch angle rate



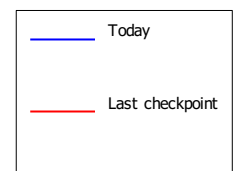
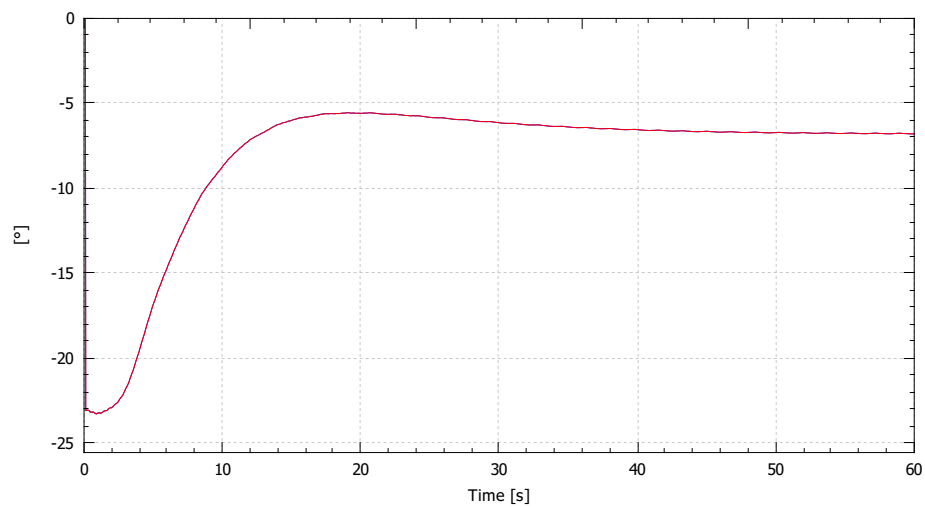
Set point



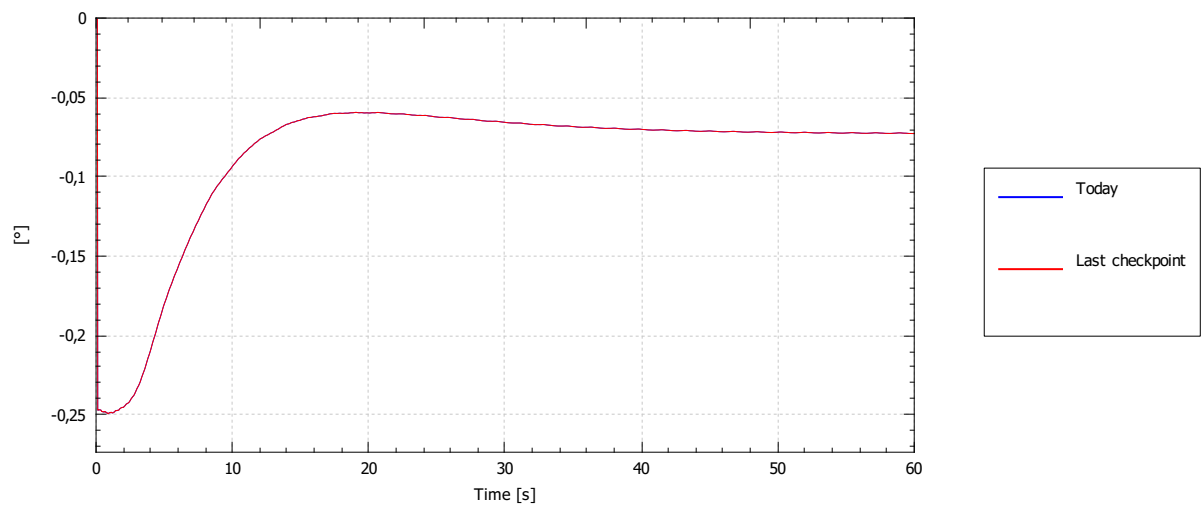
RPM error



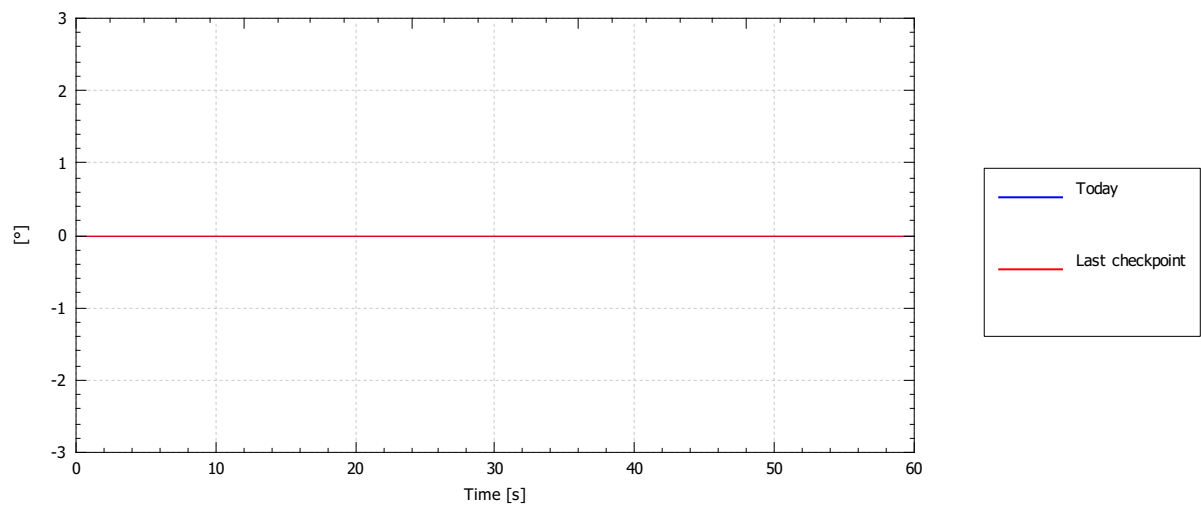
P term



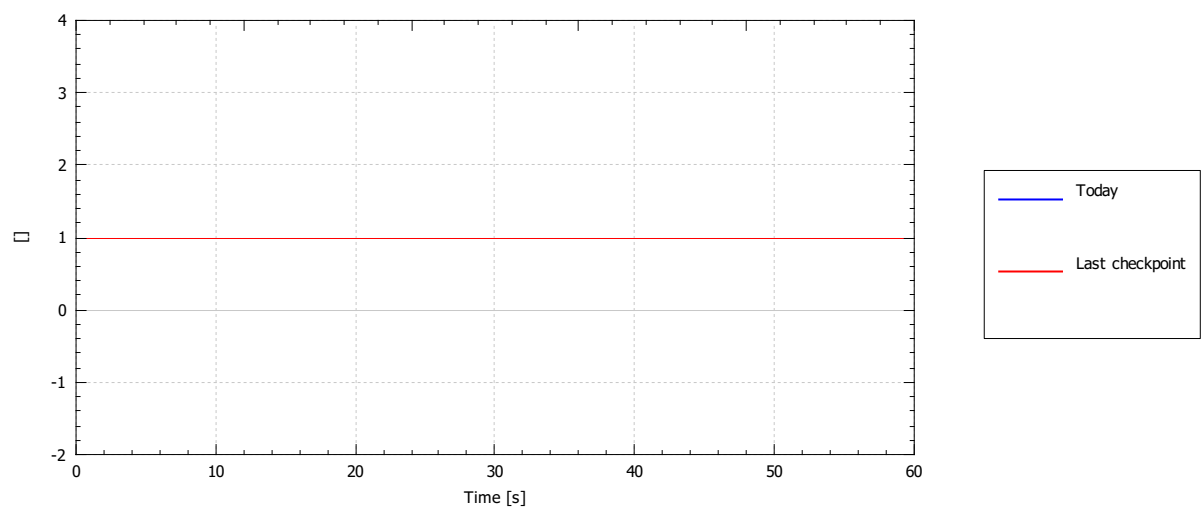
I term

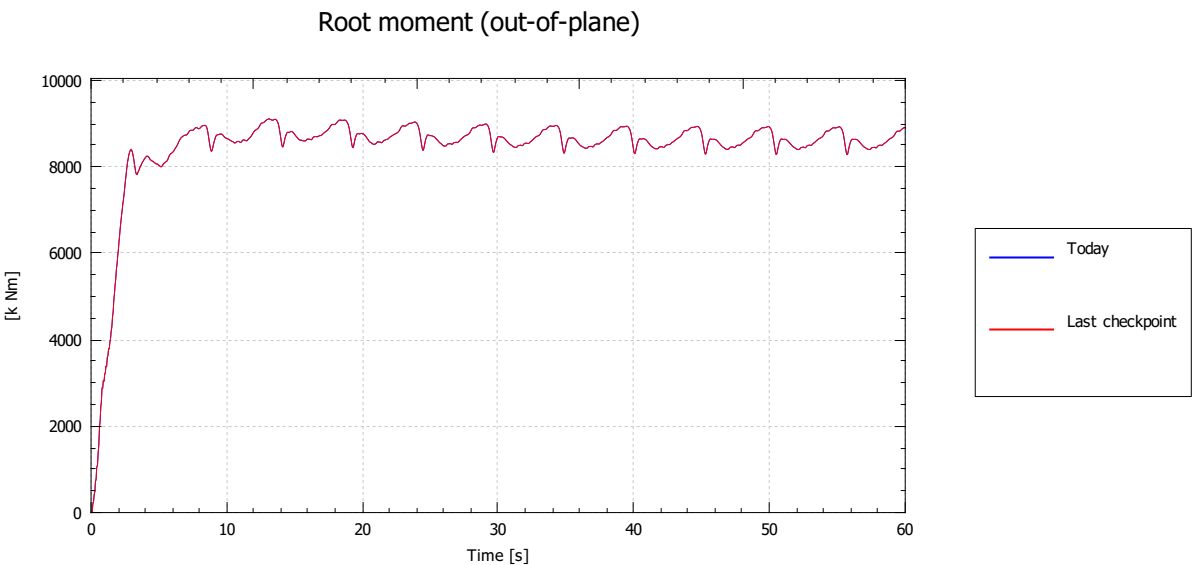
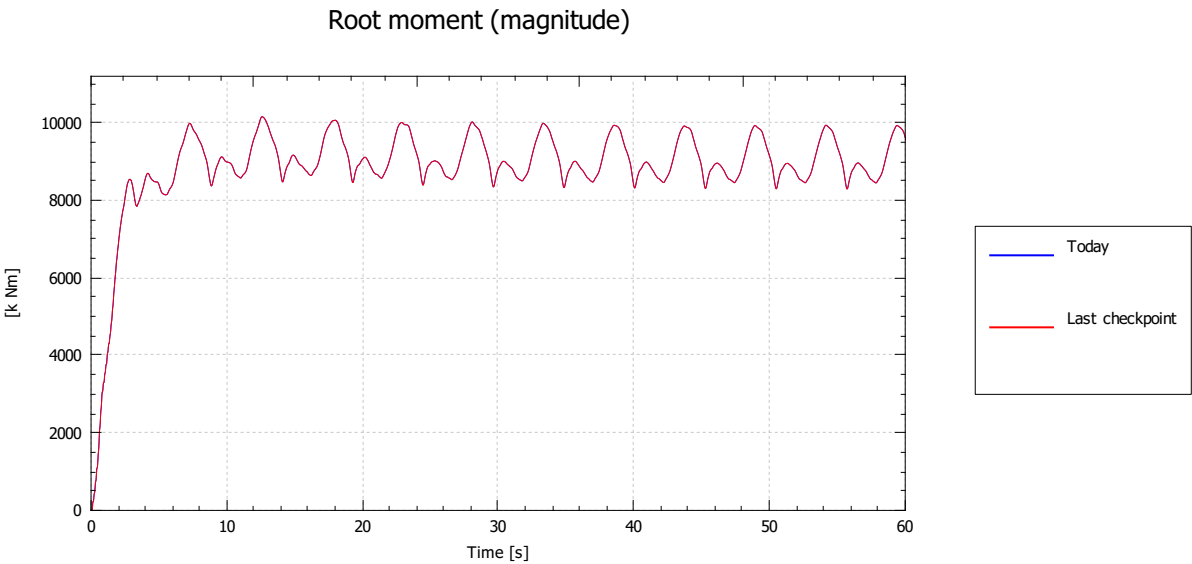
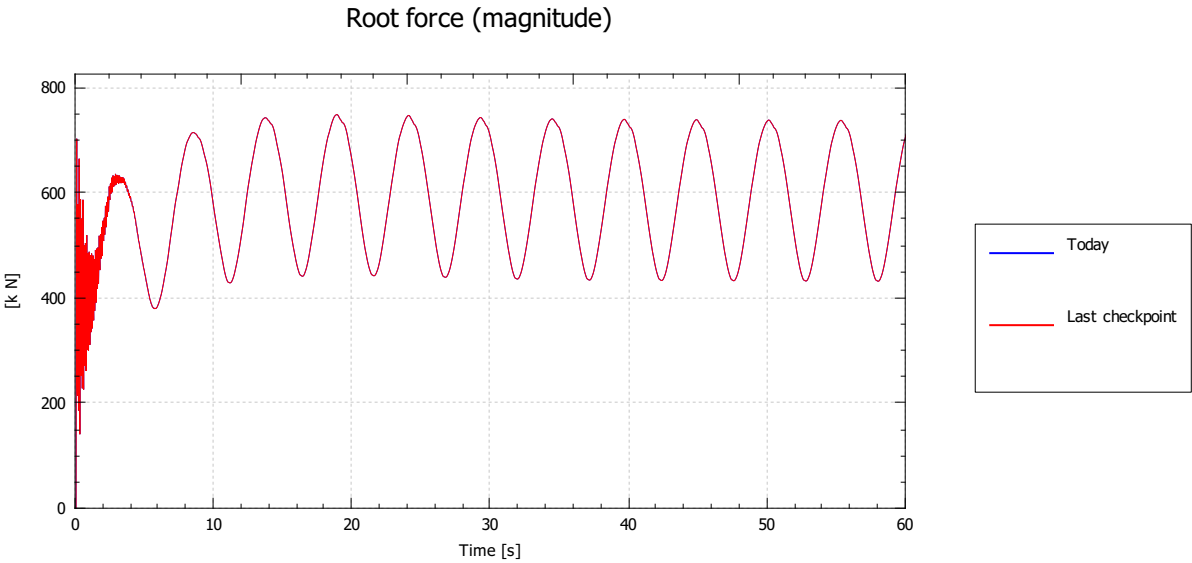


D term



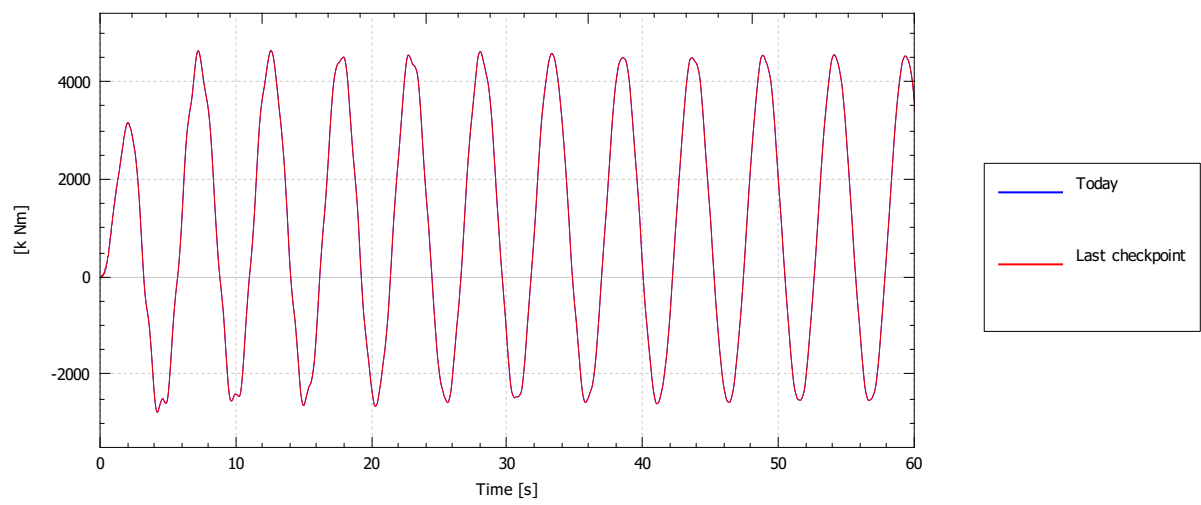
Gain scheduling factor



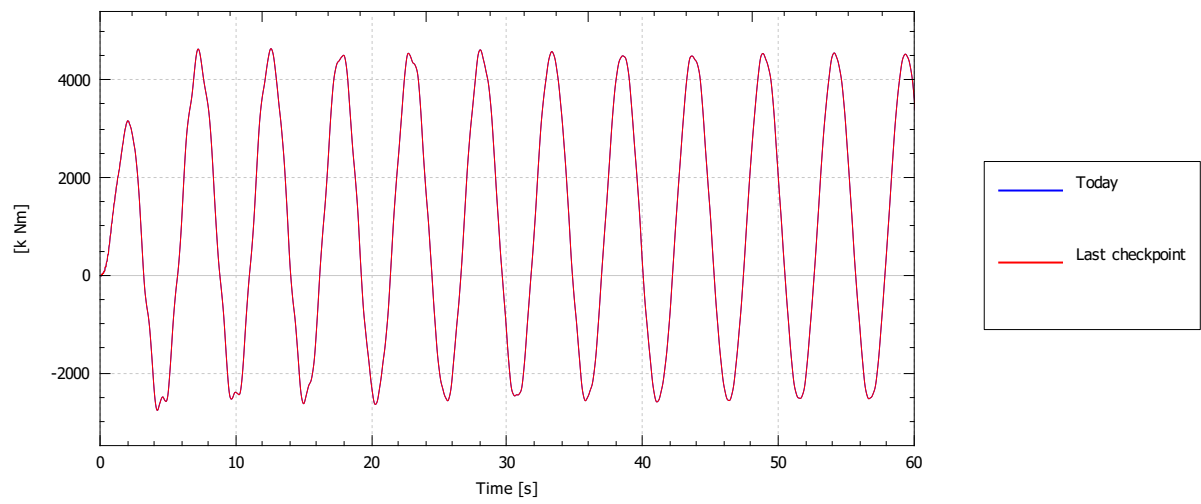




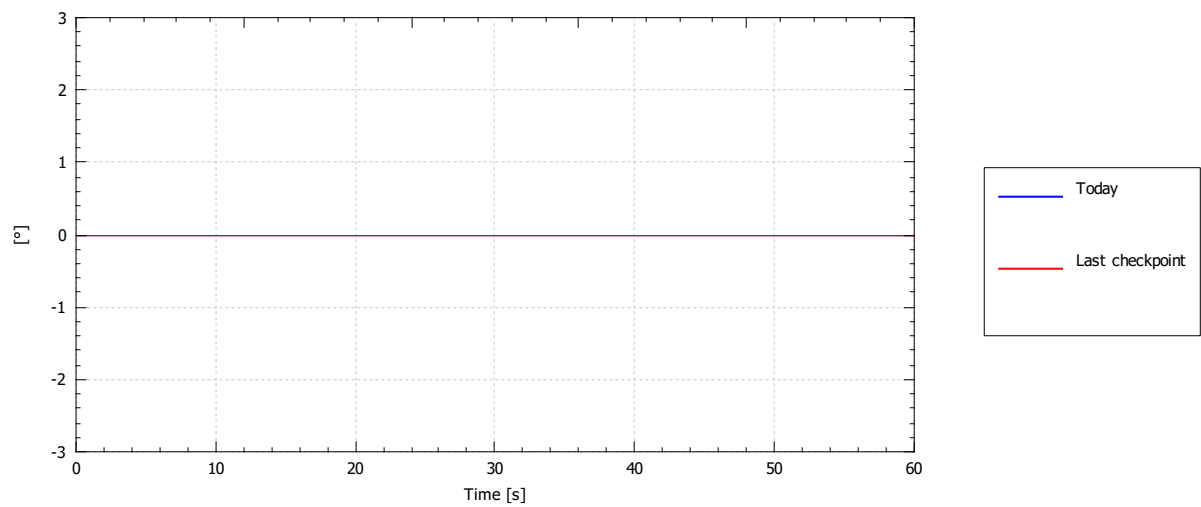
Root moment (in-plane)



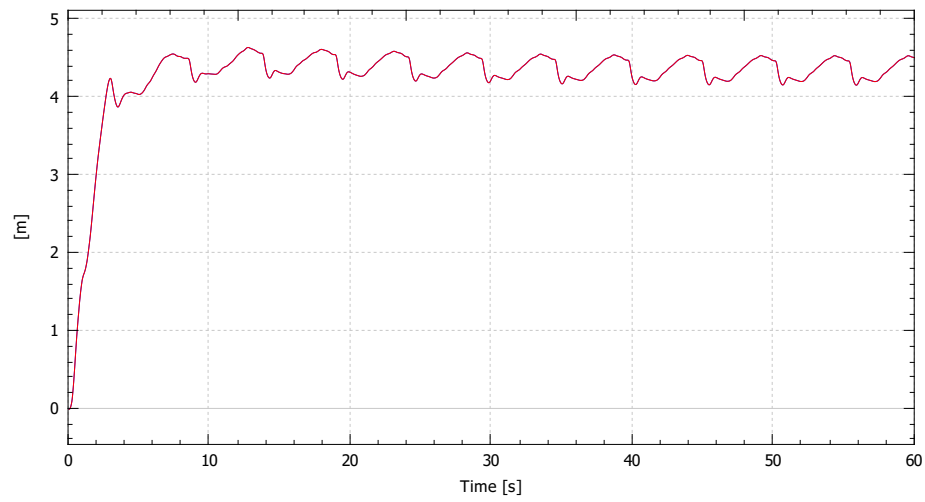
Root moment about shaft



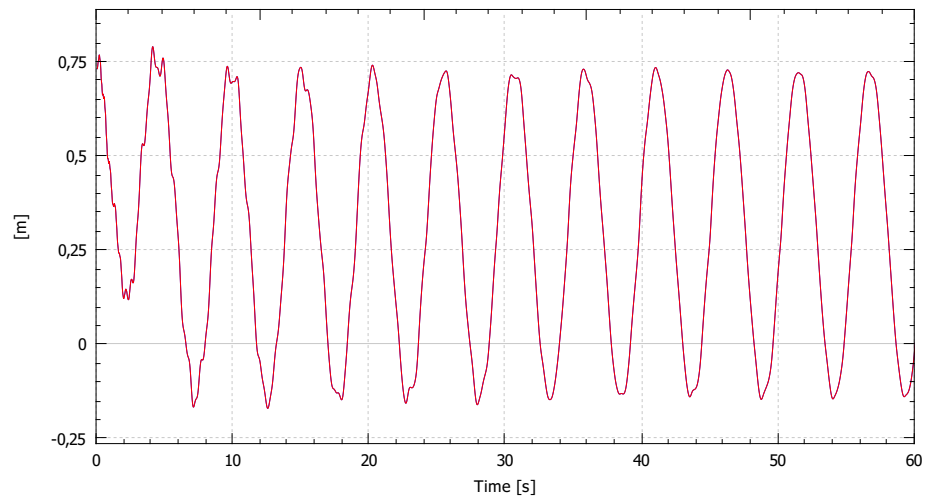
Pitch angle



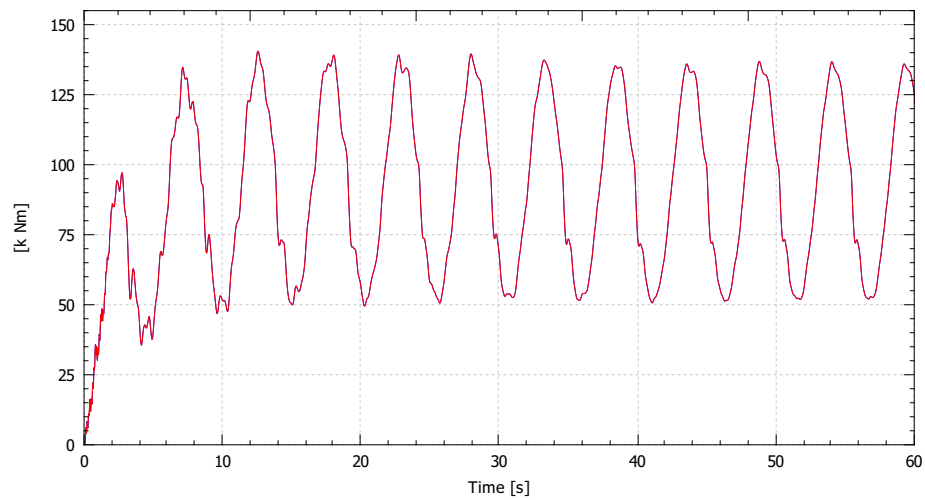
Tip deflection (out-of-plane)

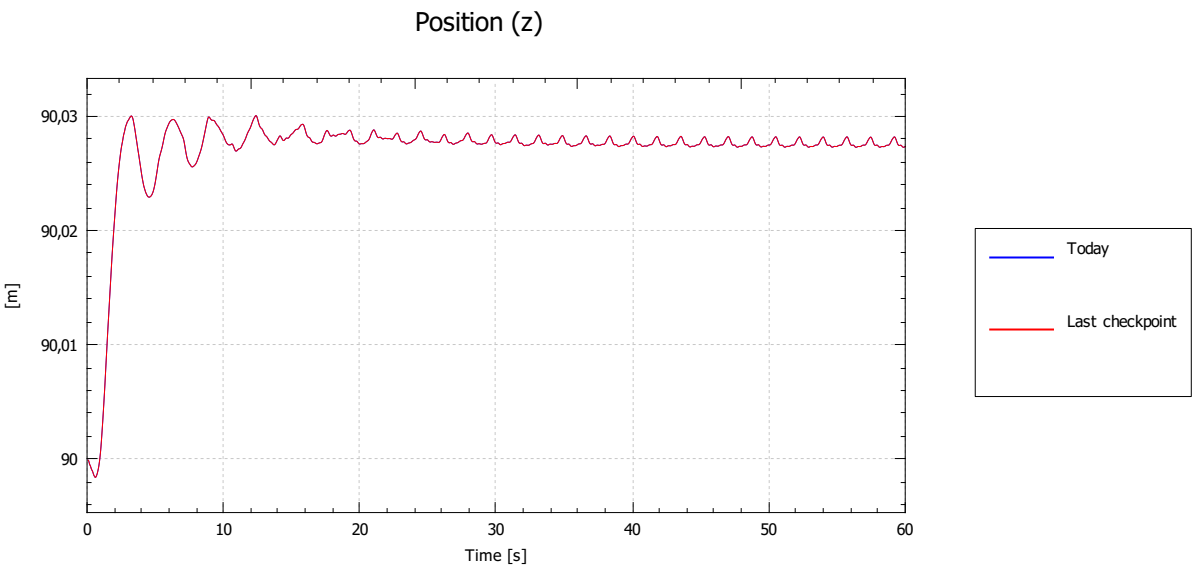
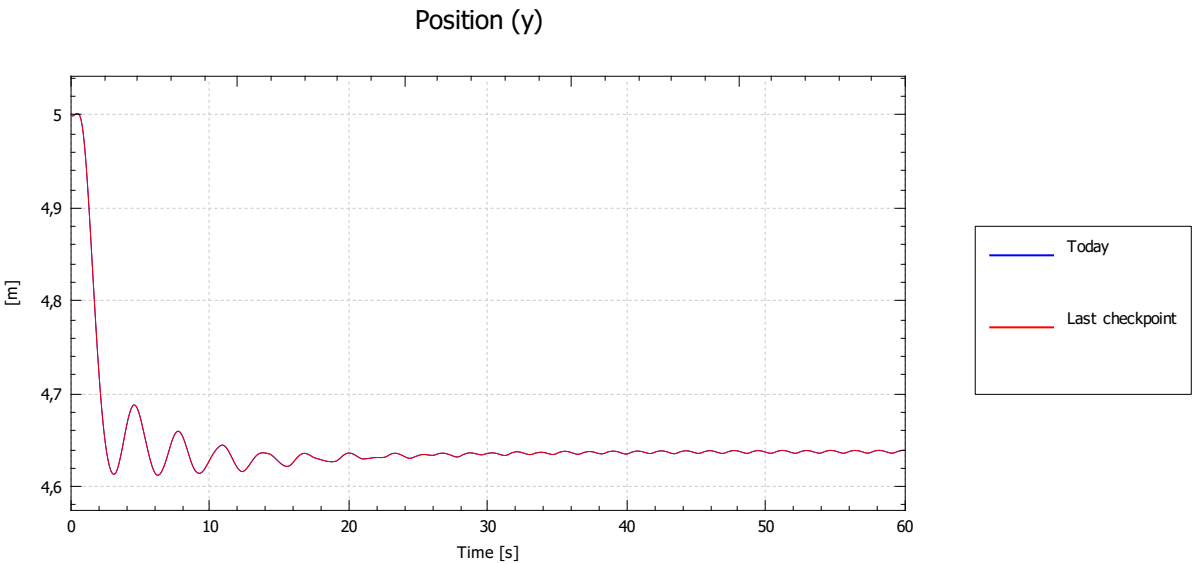
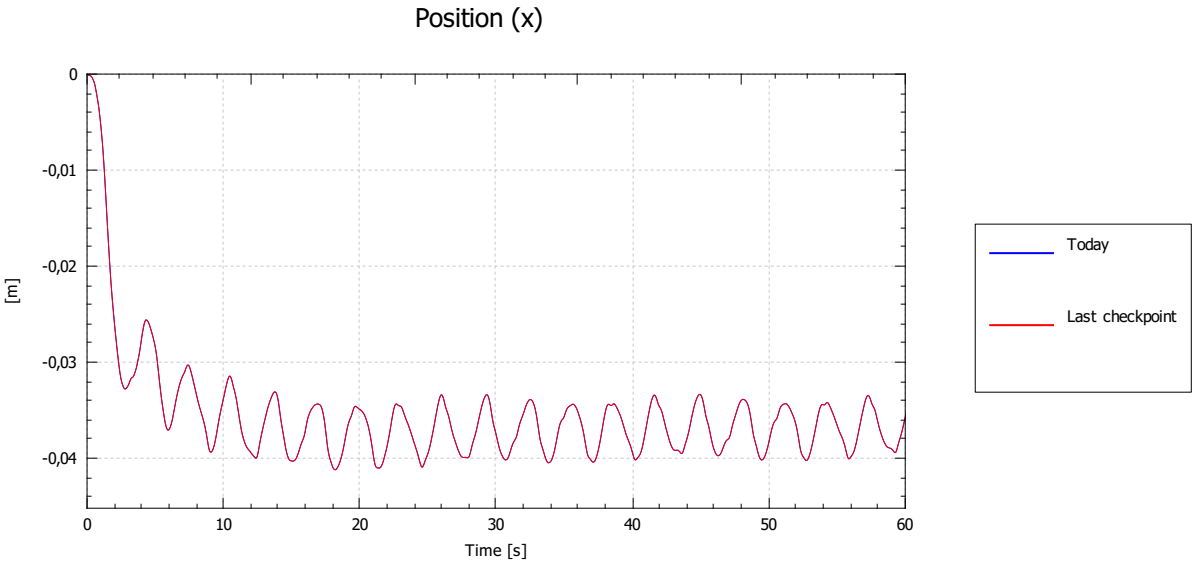


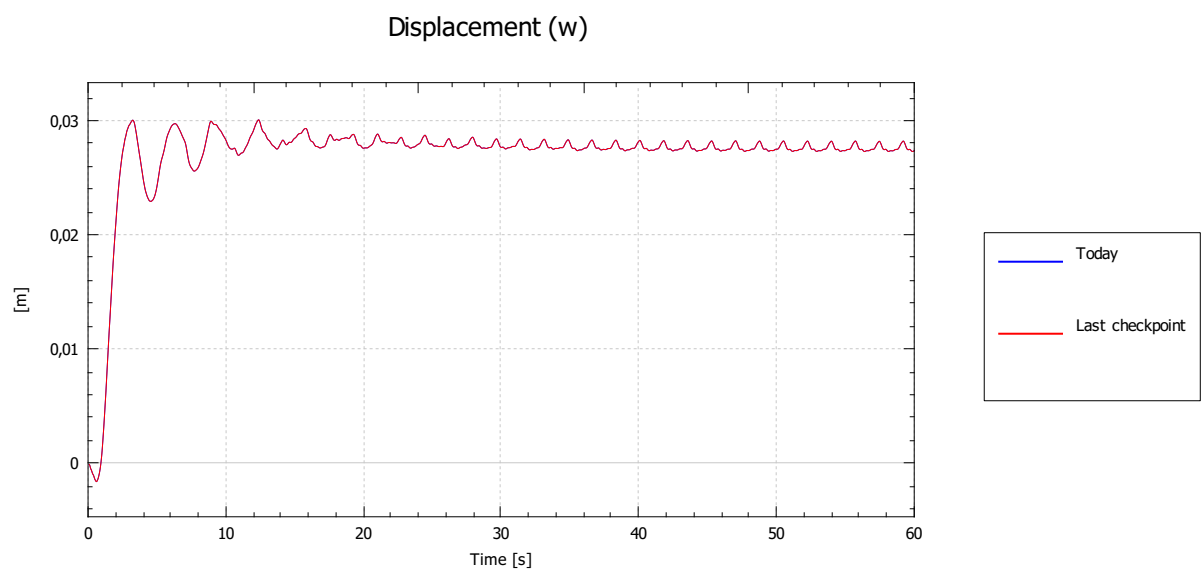
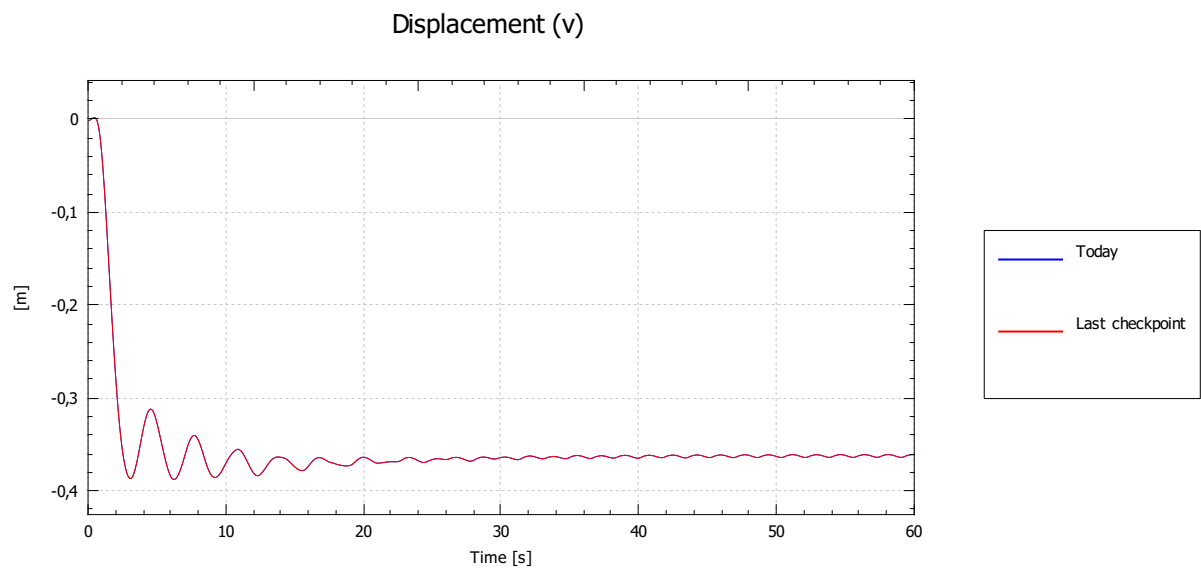
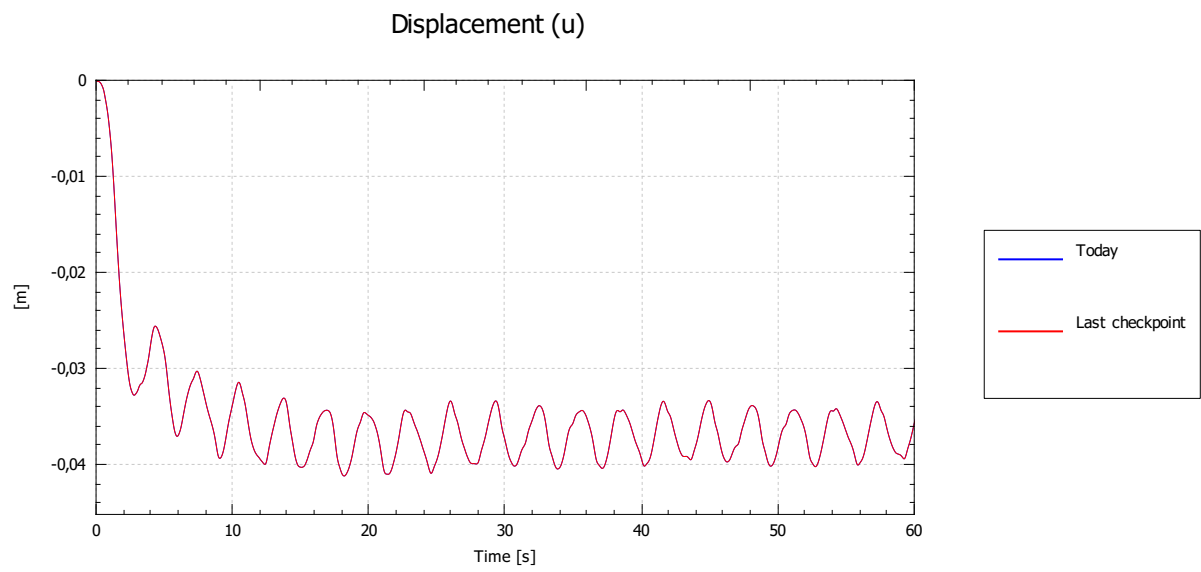
Tip deflection (in-plane)



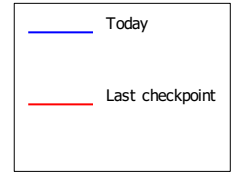
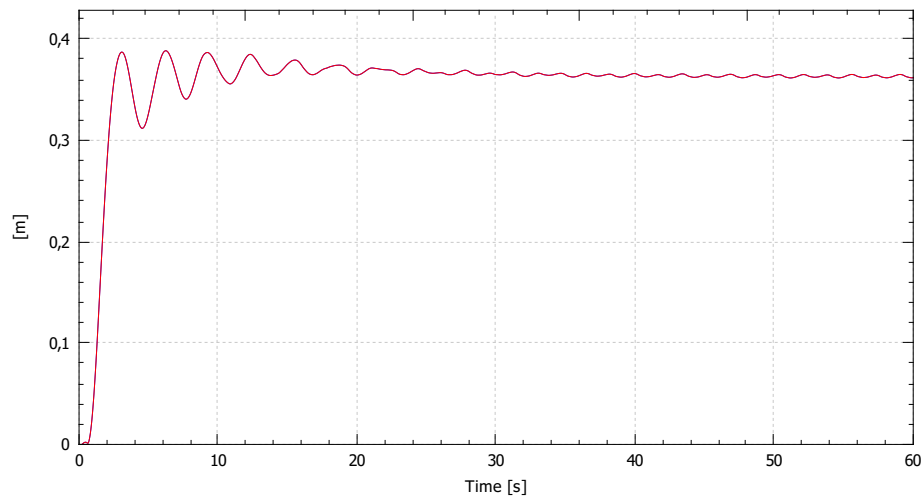
Root torque



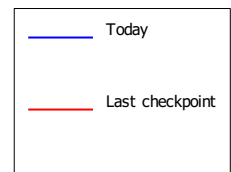
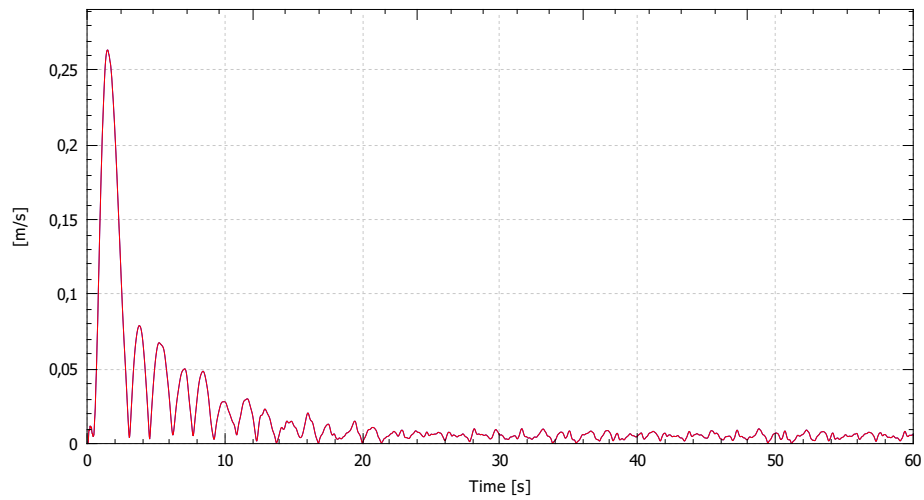




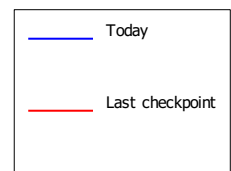
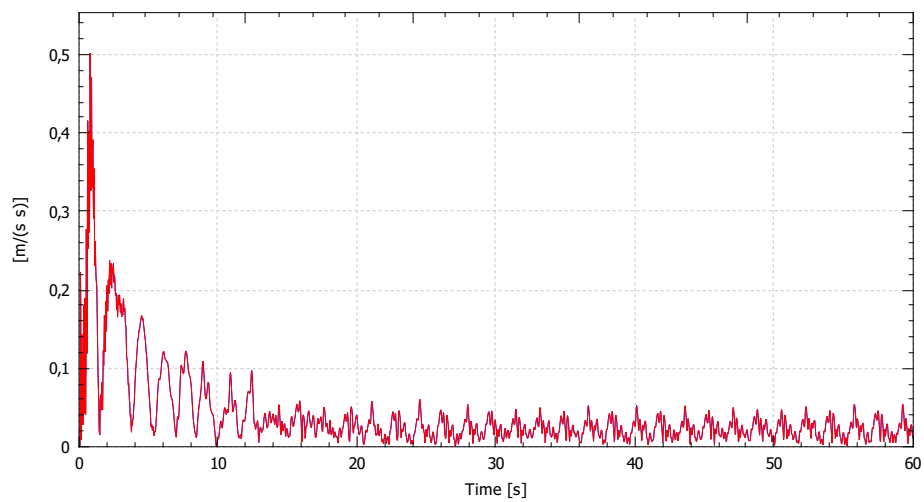
Displacement magnitude



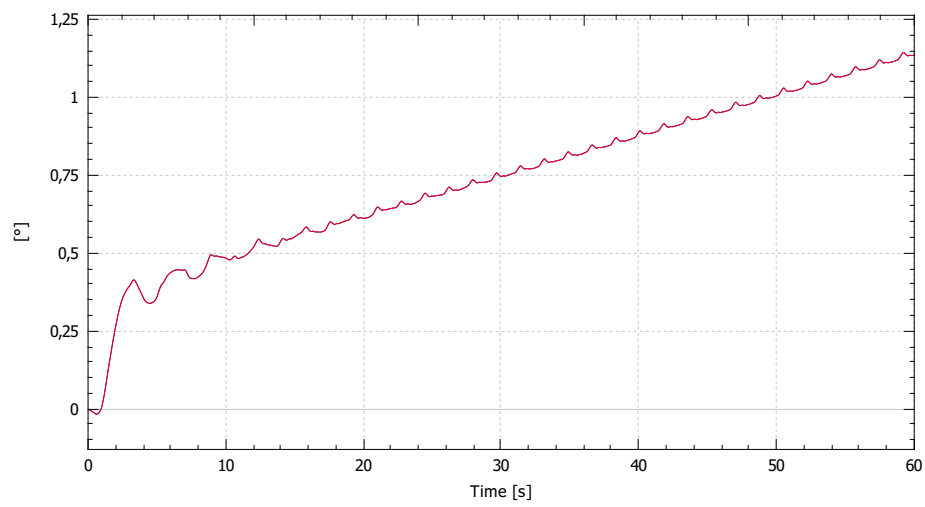
Speed



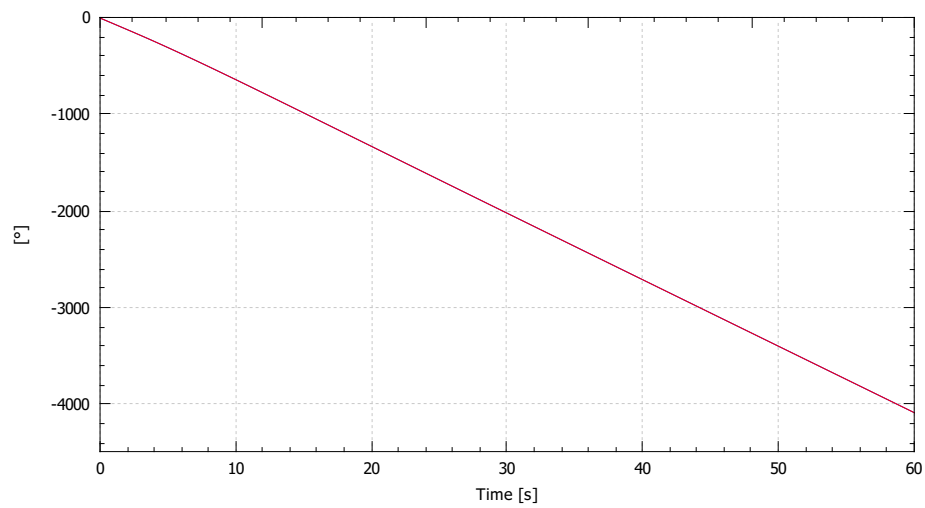
Acceleration, magnitude



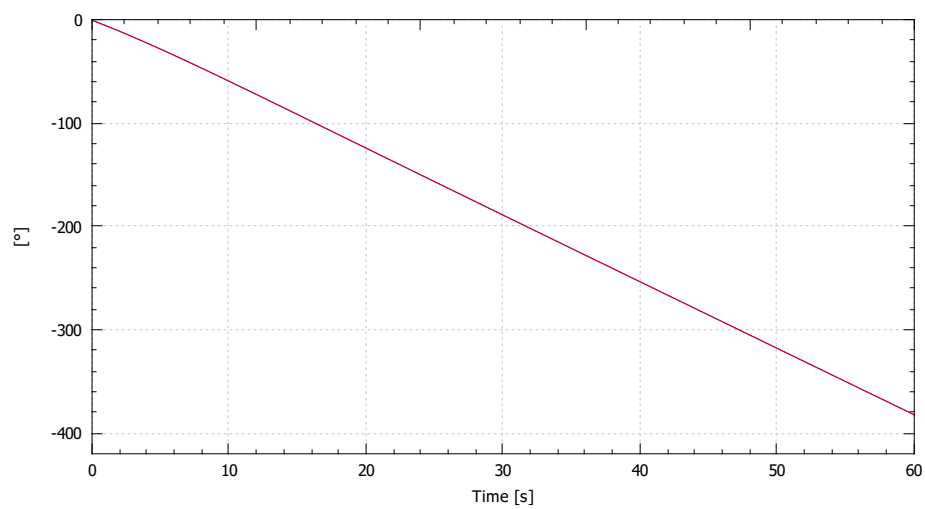
Rotational displacement (ru)



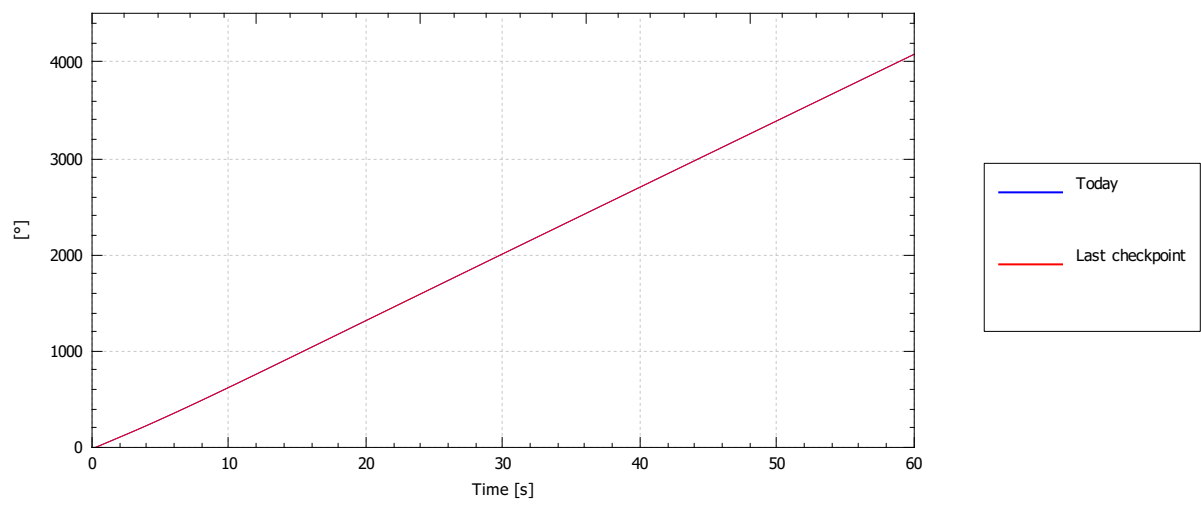
Rotational displacement (rv)



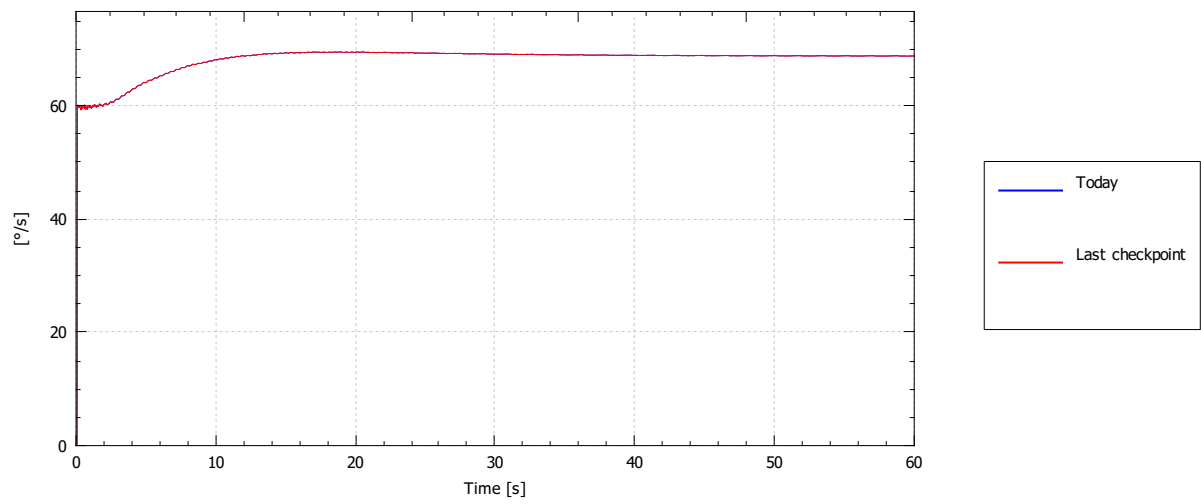
Rotational displacement (rw)



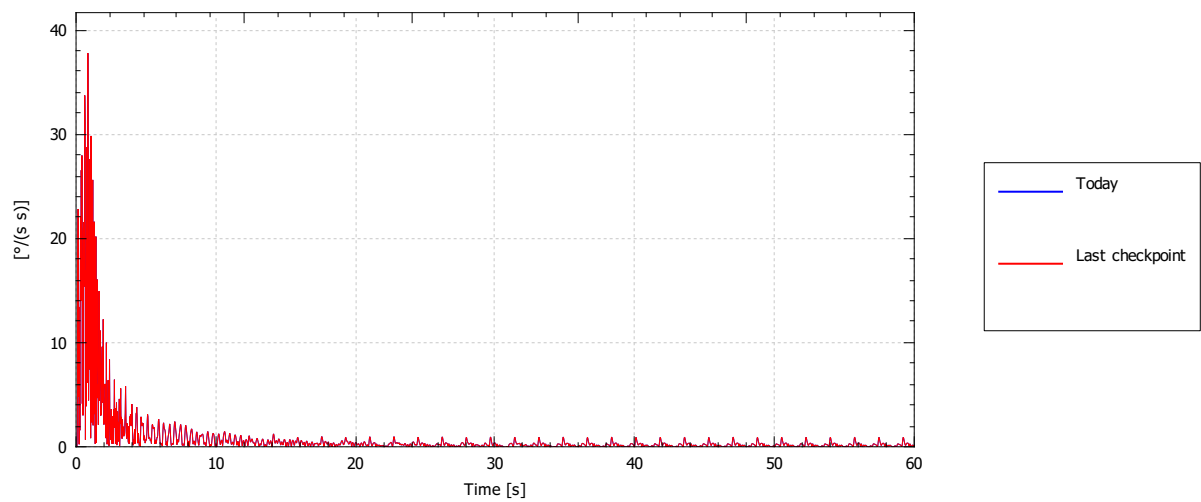
Rotational displacement magnitude



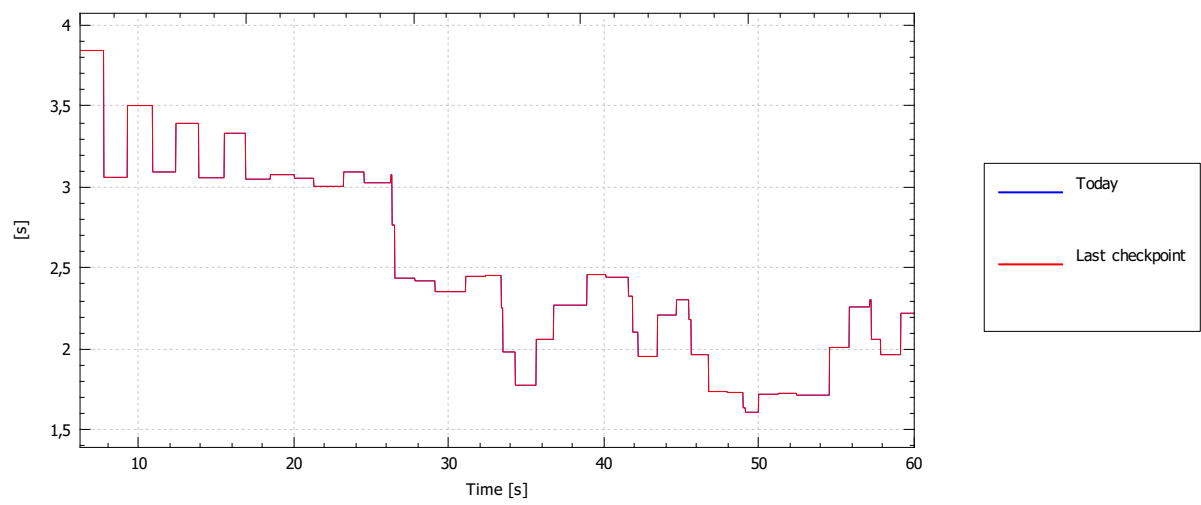
Rotational speed



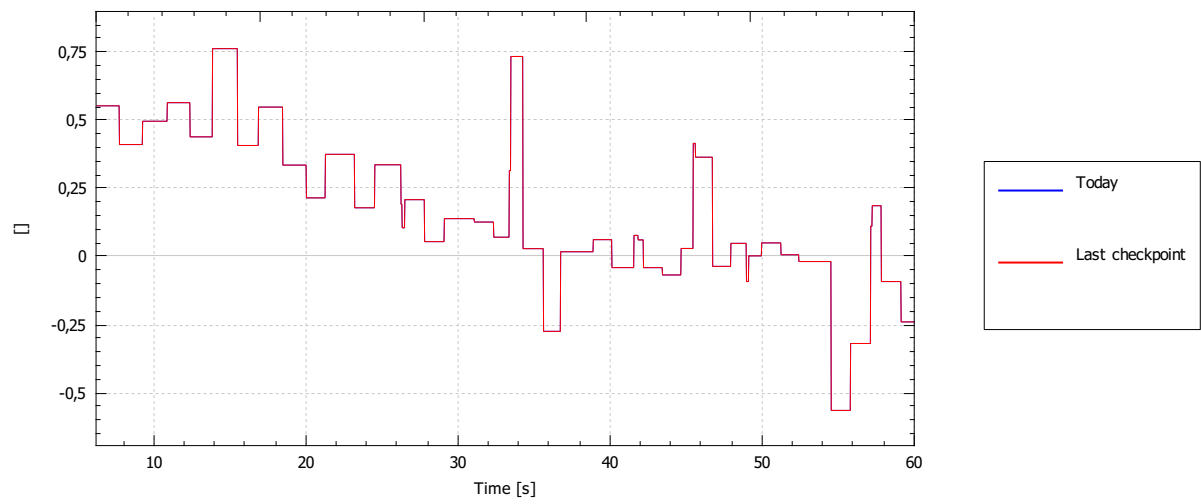
Rotational acceleration mag



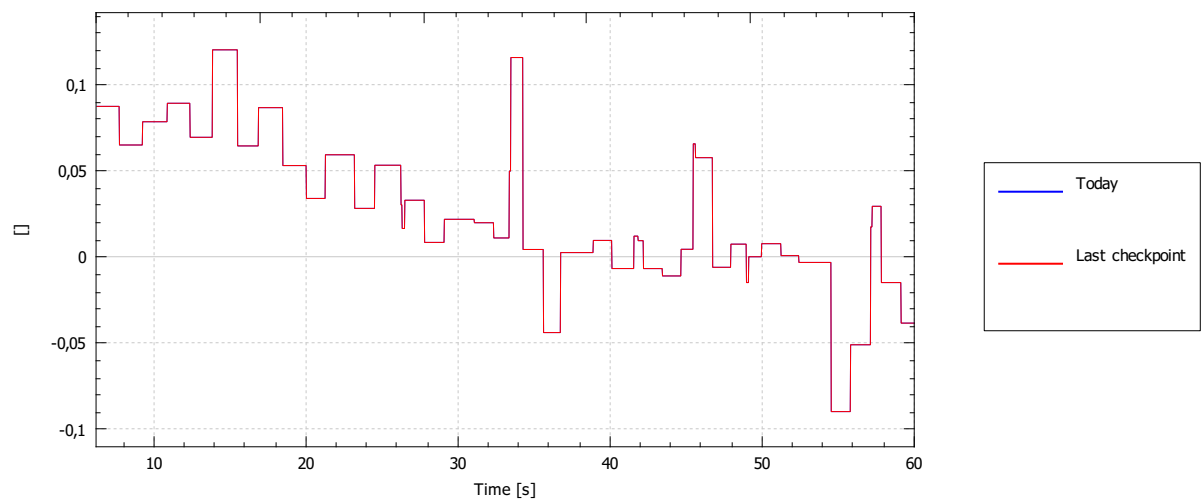
Displacement period



Displacement logarithmic decrement



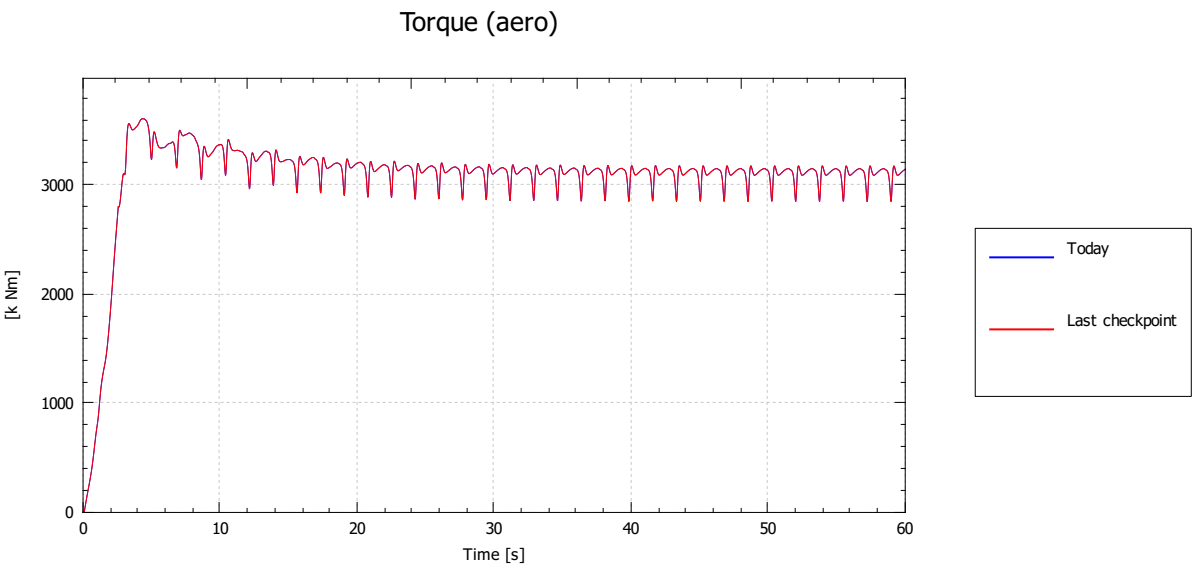
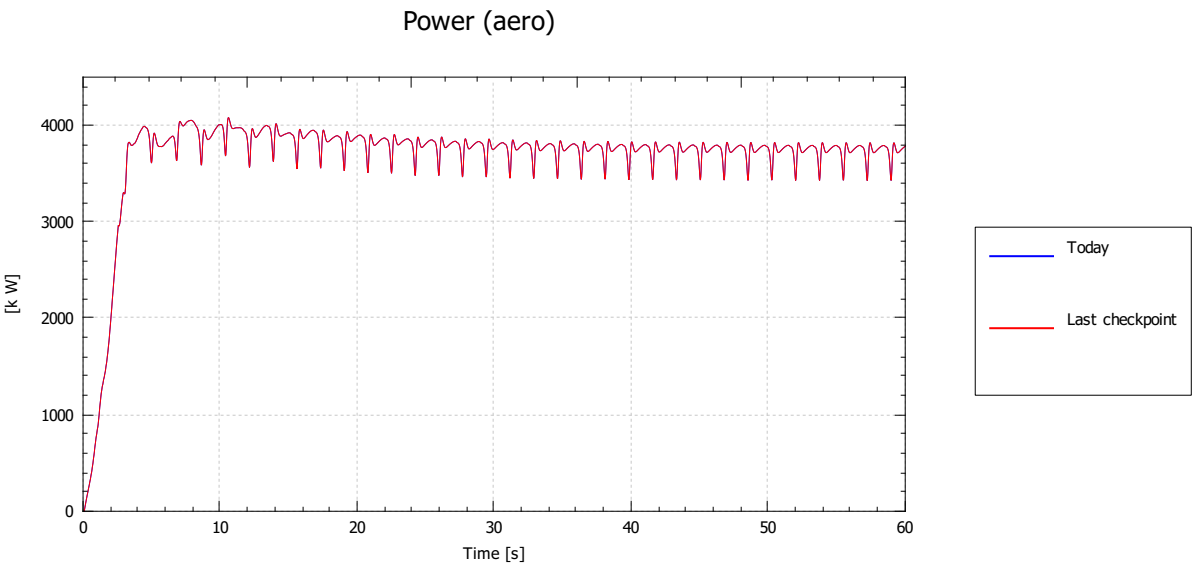
Displacement damping ratio



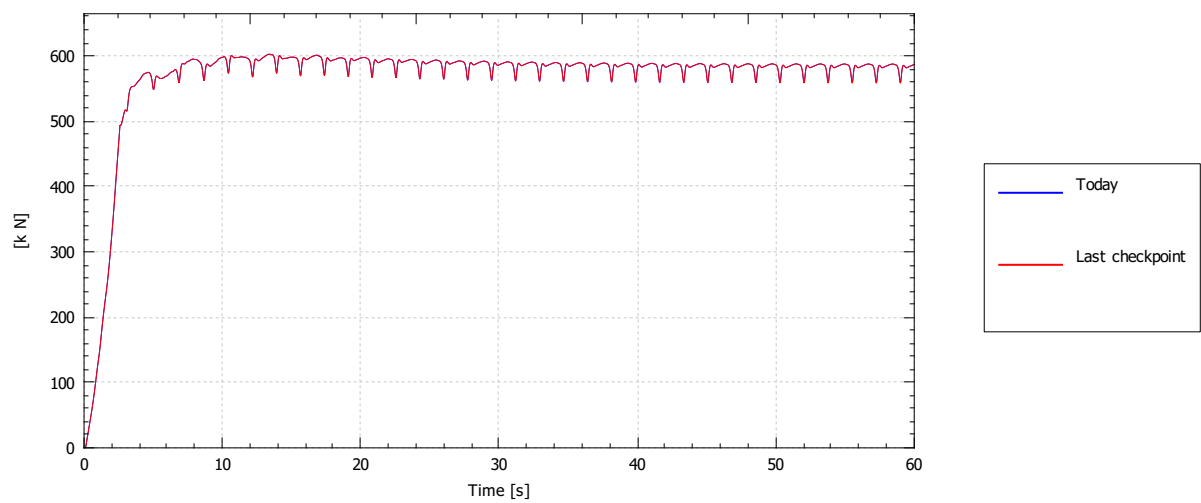


Load case: Curve exponential

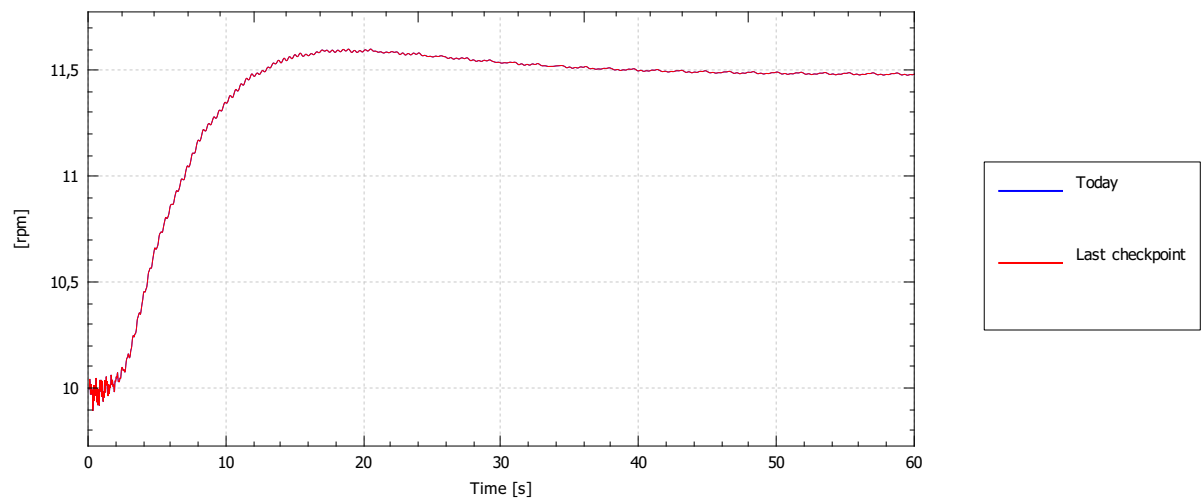
Rotor



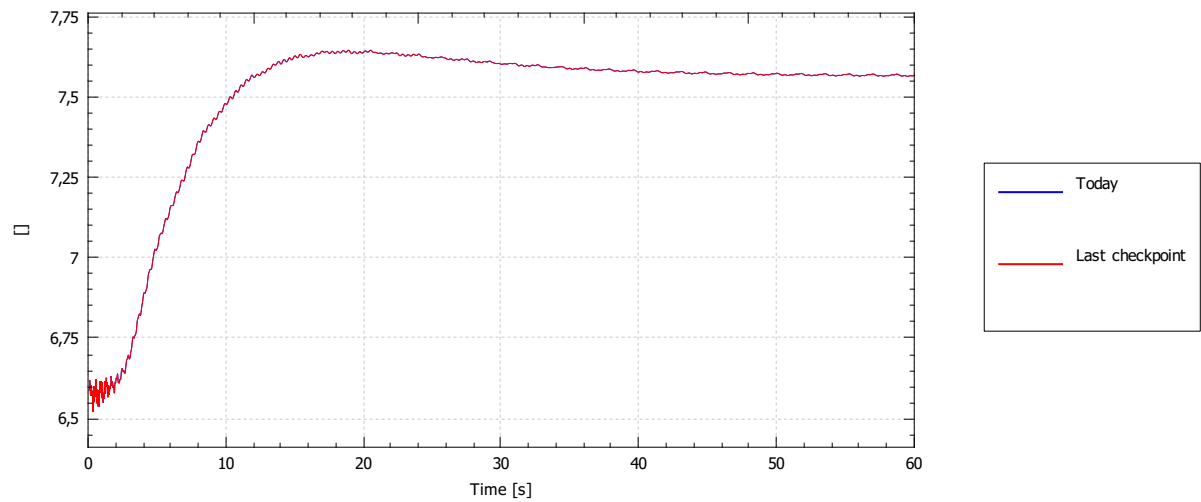
Thrust (aero)



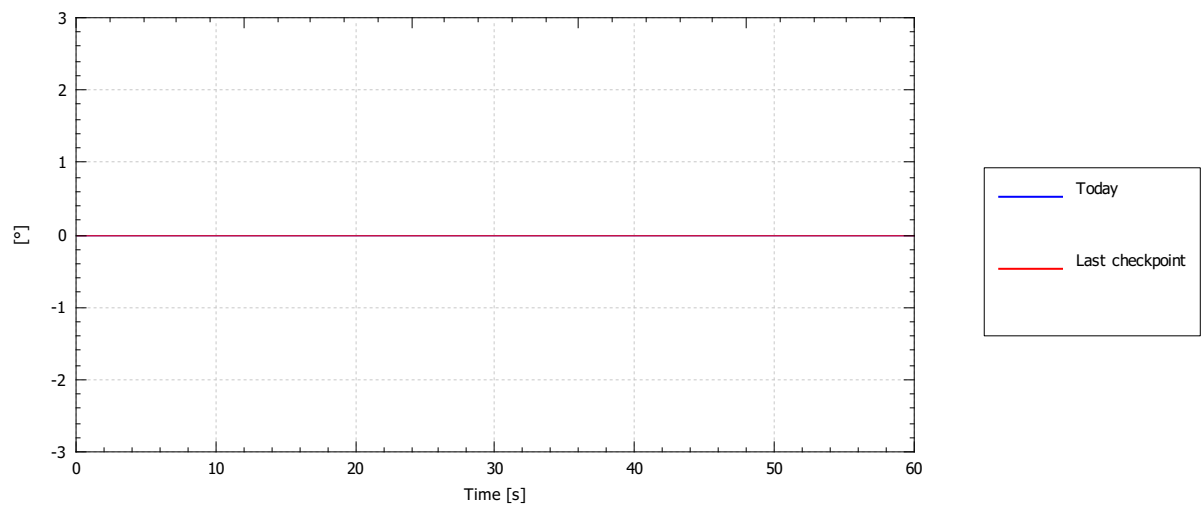
RPM



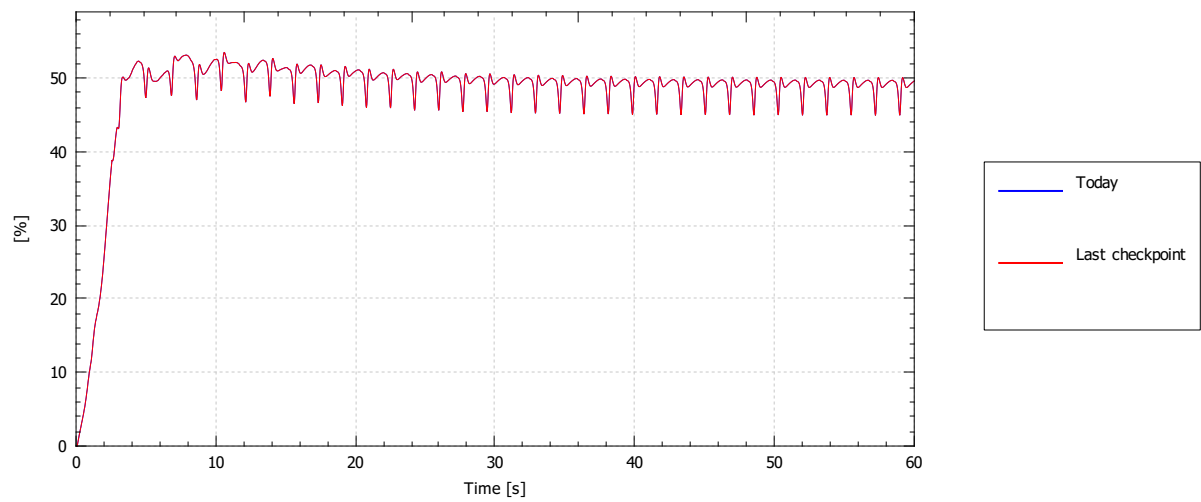
TSR



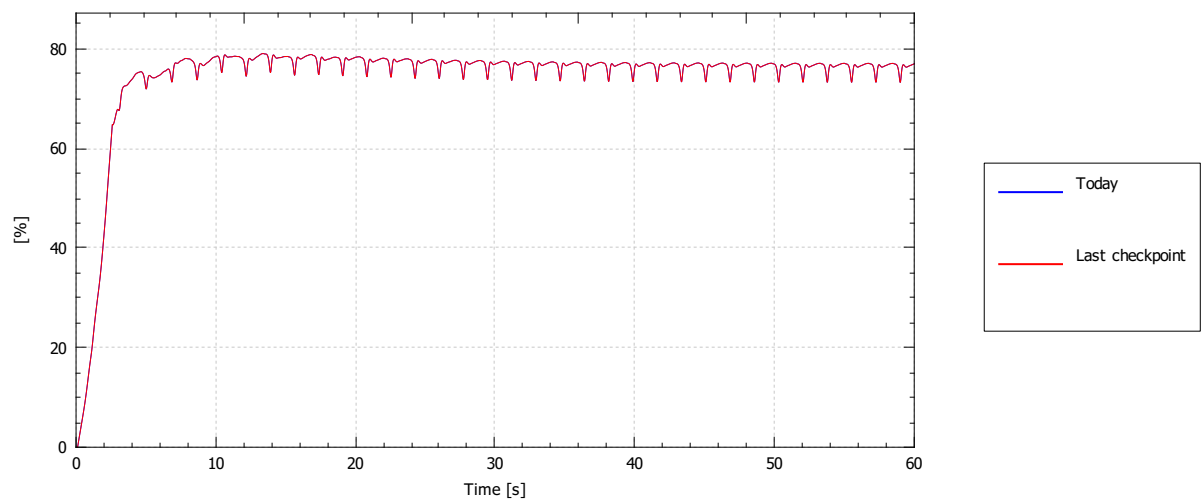
Representative demanded pitch angle



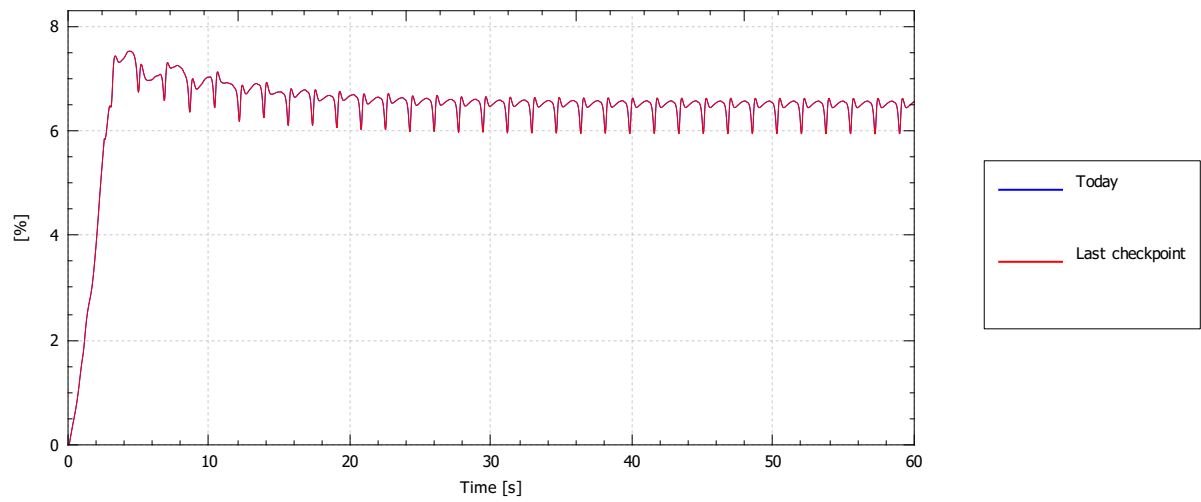
Power coef. (CP)



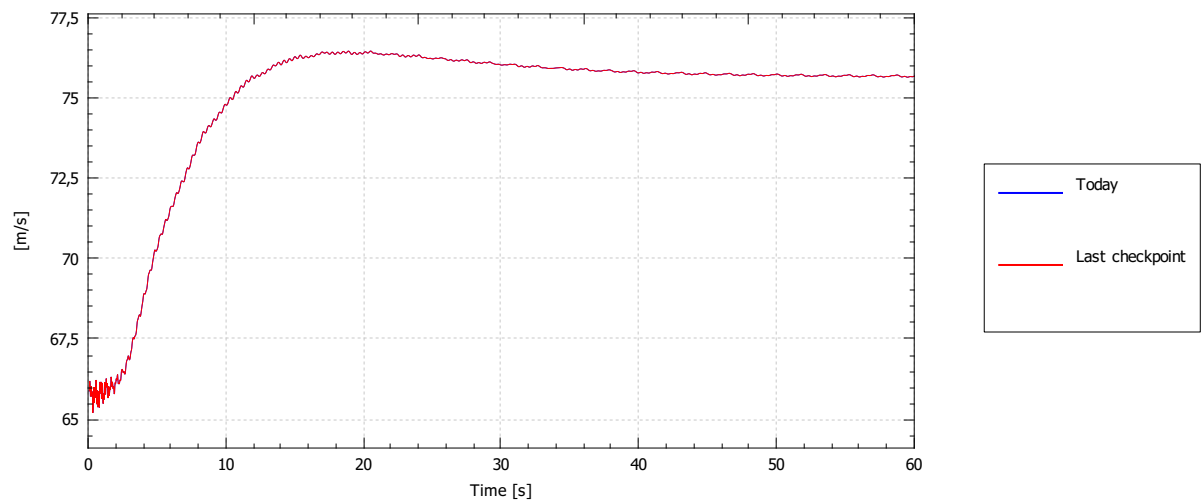
Thrust coef. (CT)



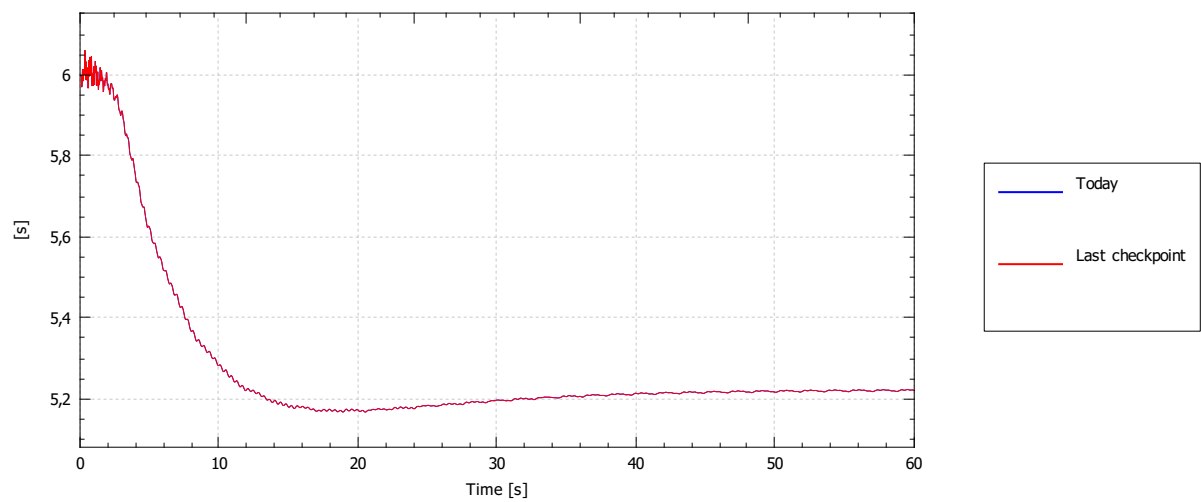
Torque coef. (CQ)



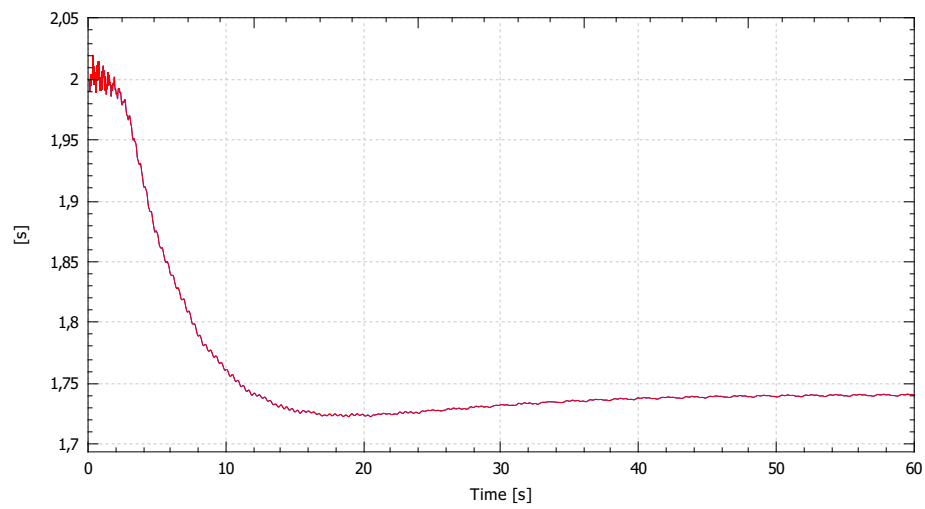
Tip speed



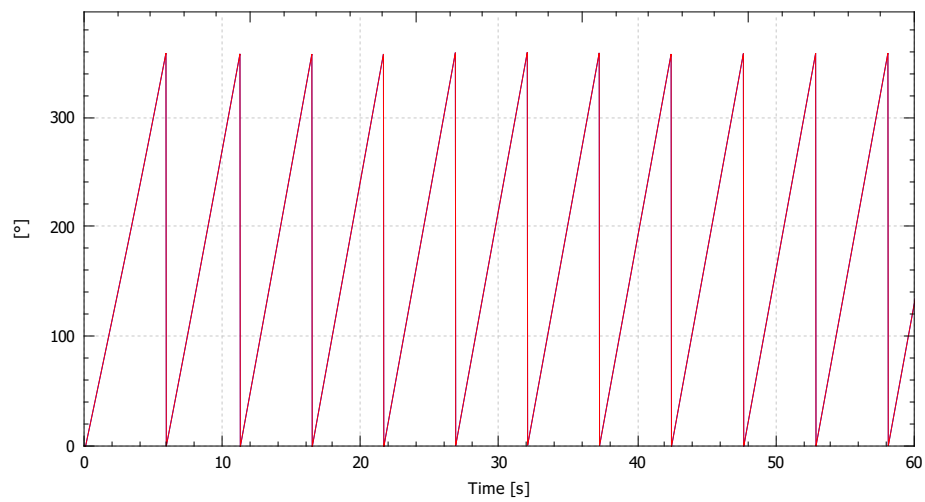
1P (one revolution)



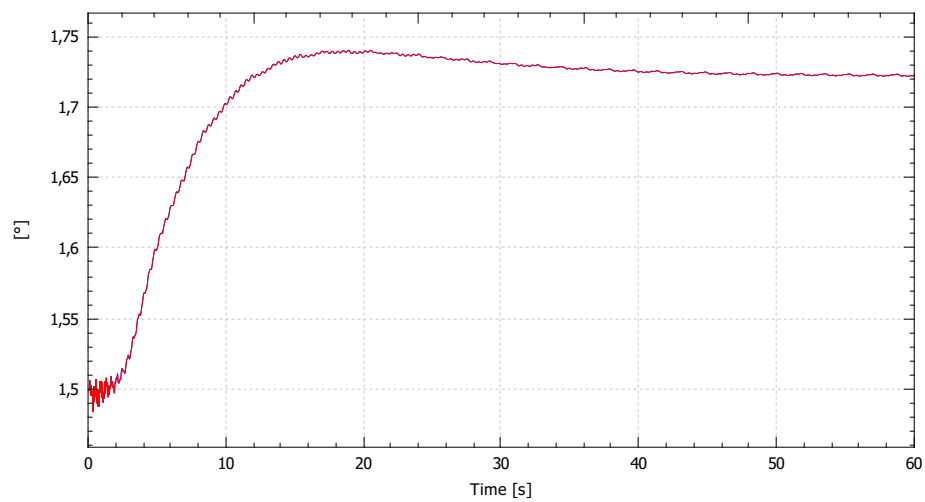
nP (blade passing)



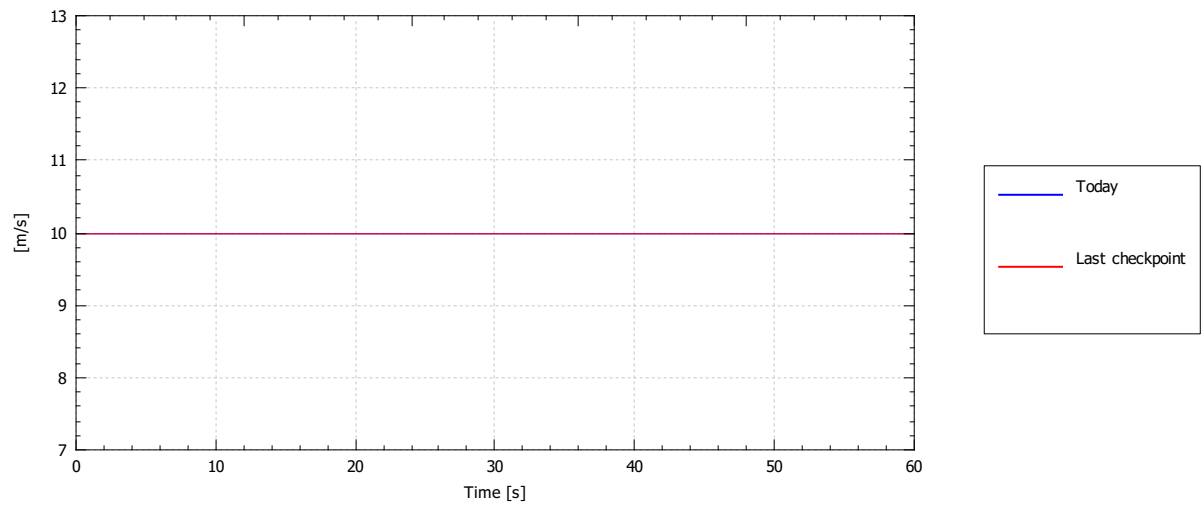
Azimuth angle



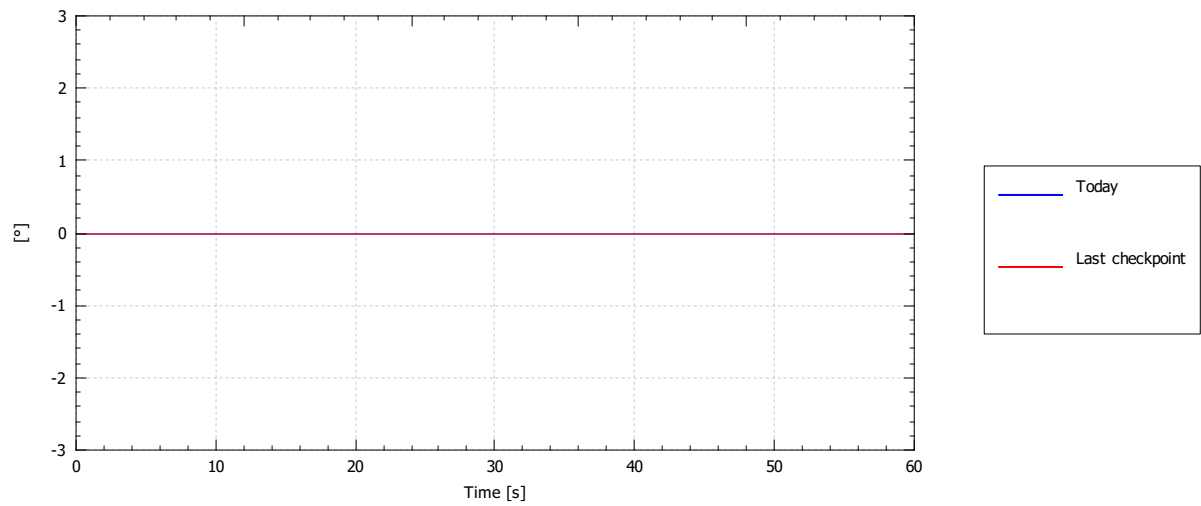
Rotation per timestep



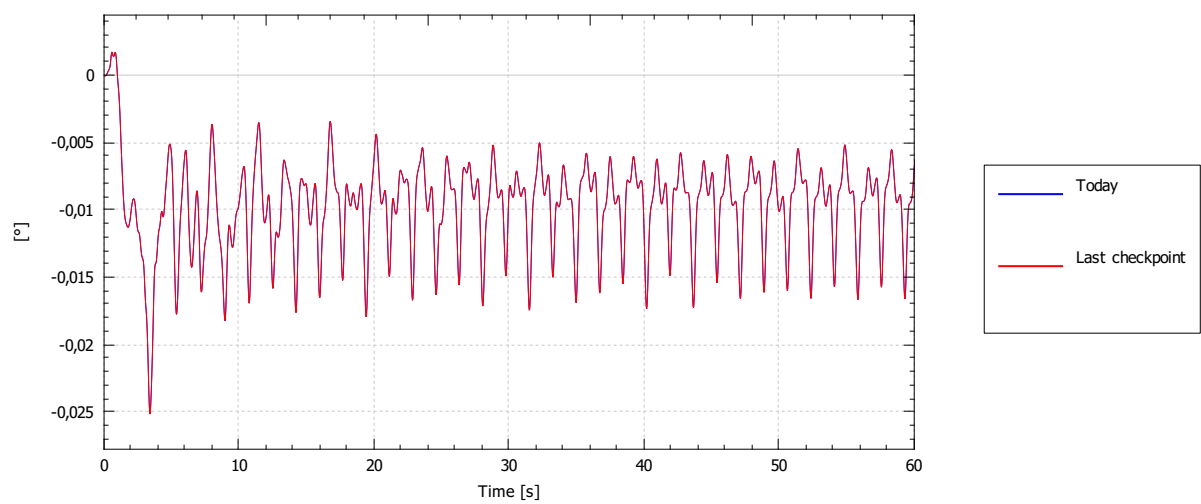
Wind speed at hub, magnitude



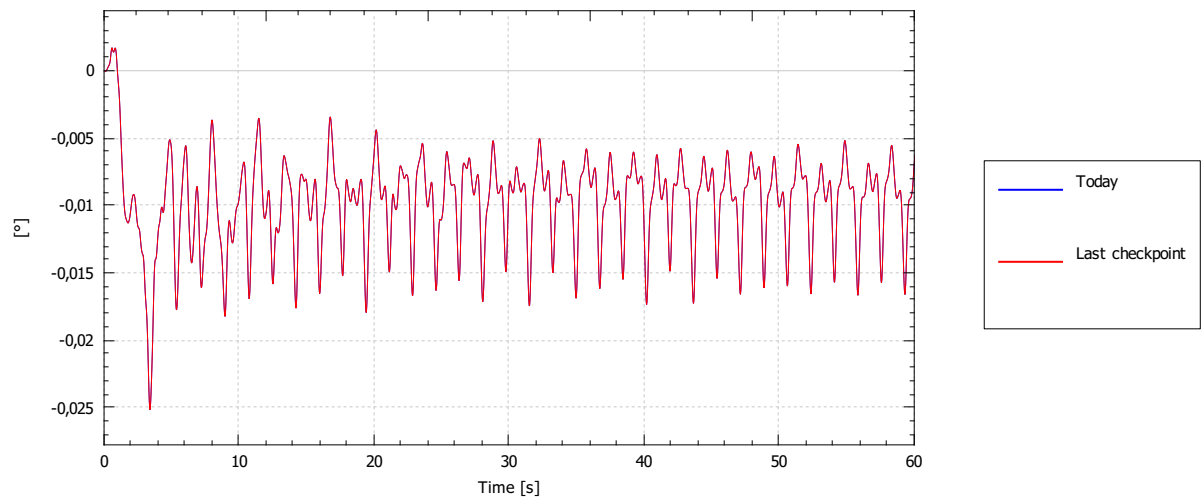
Wind angle at hub



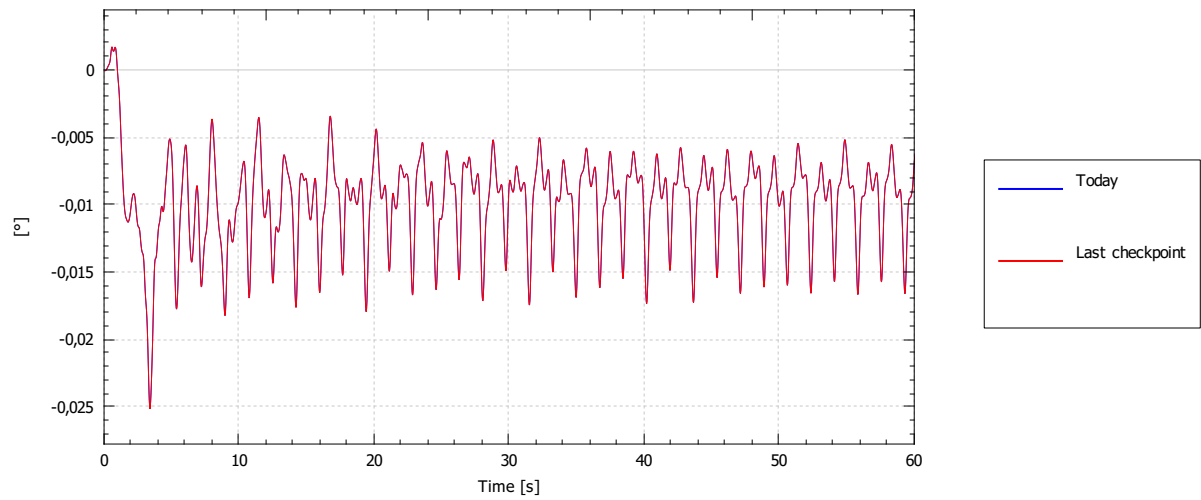
Yaw angle relative to forward



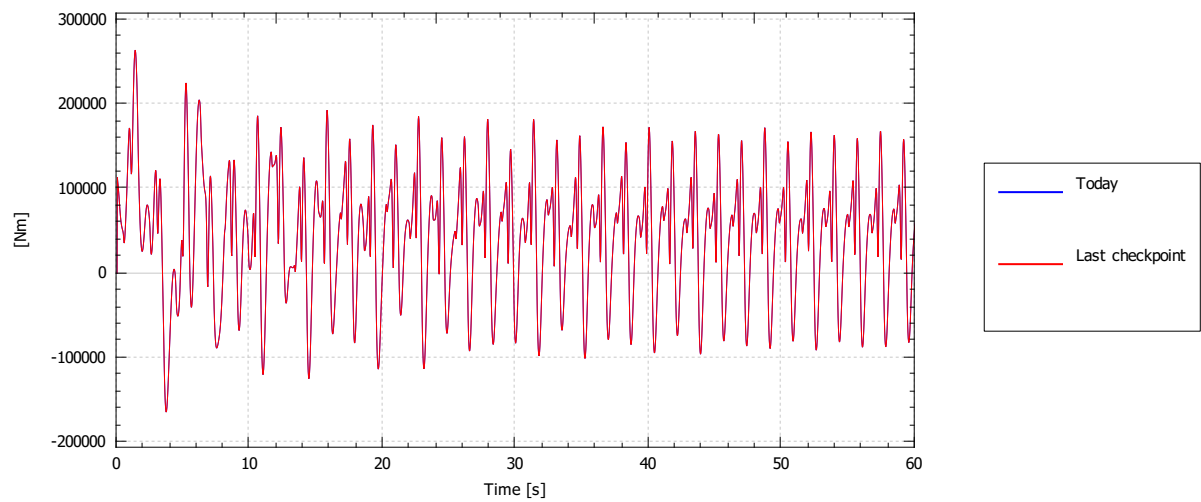
Yaw angle to reference direction



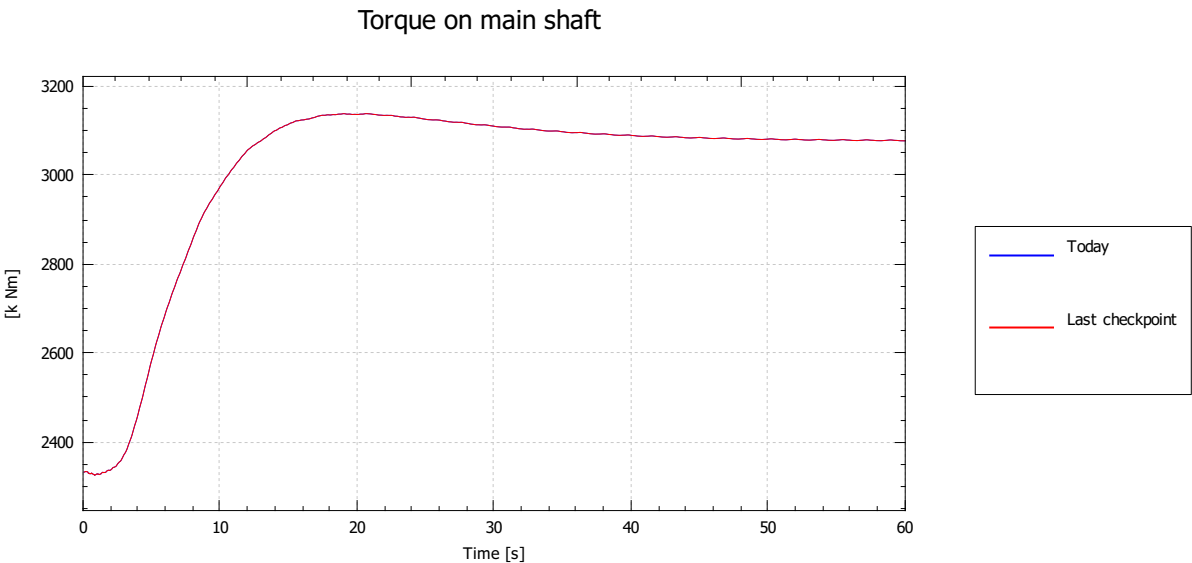
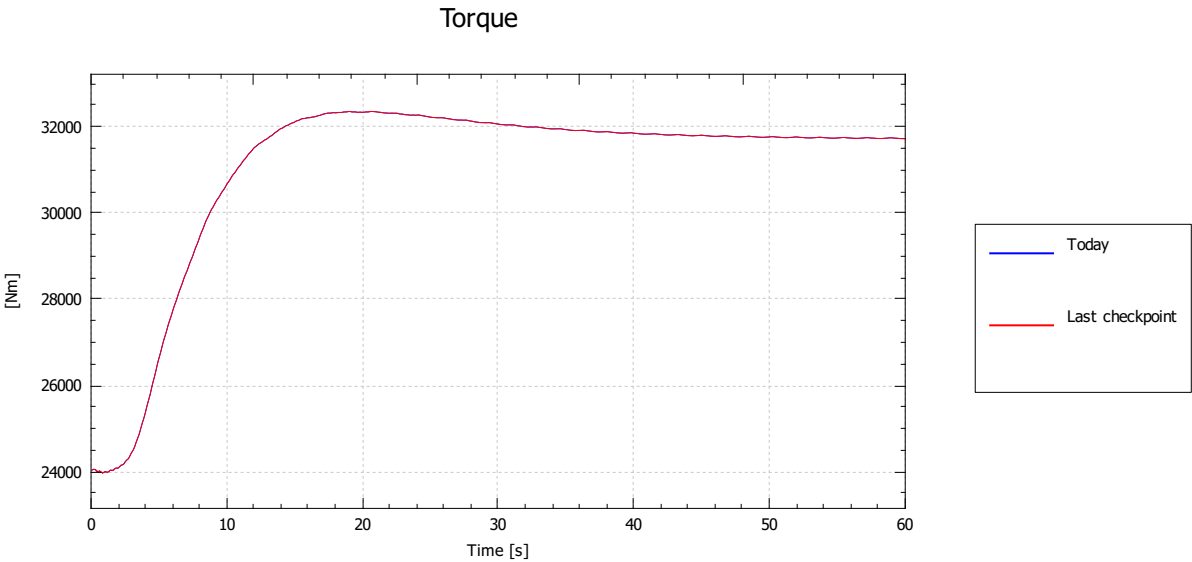
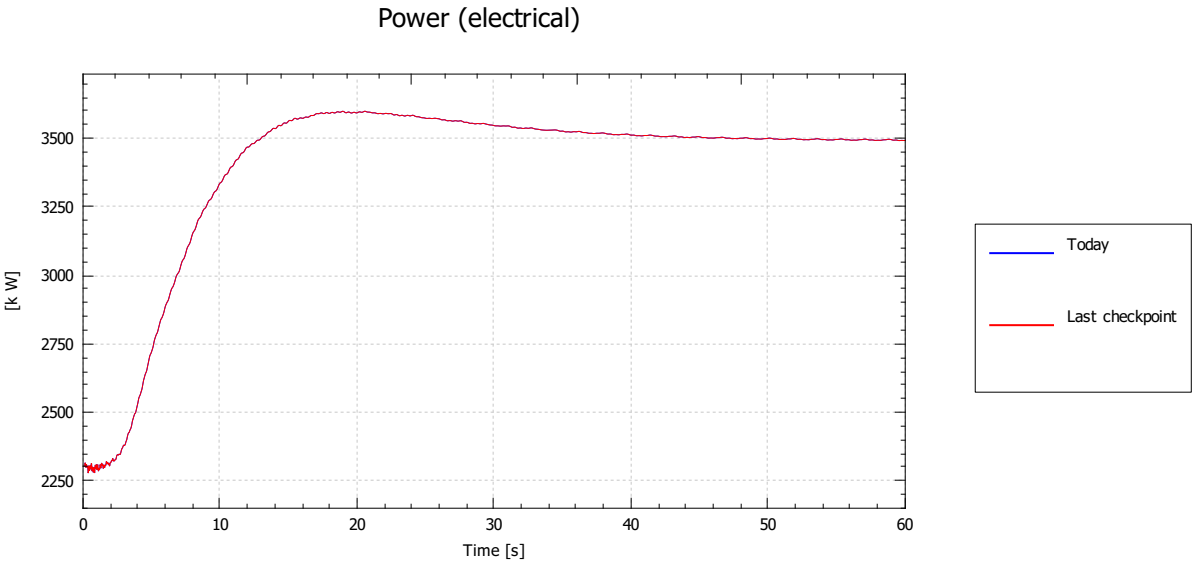
Yaw error



Torque about yaw axis

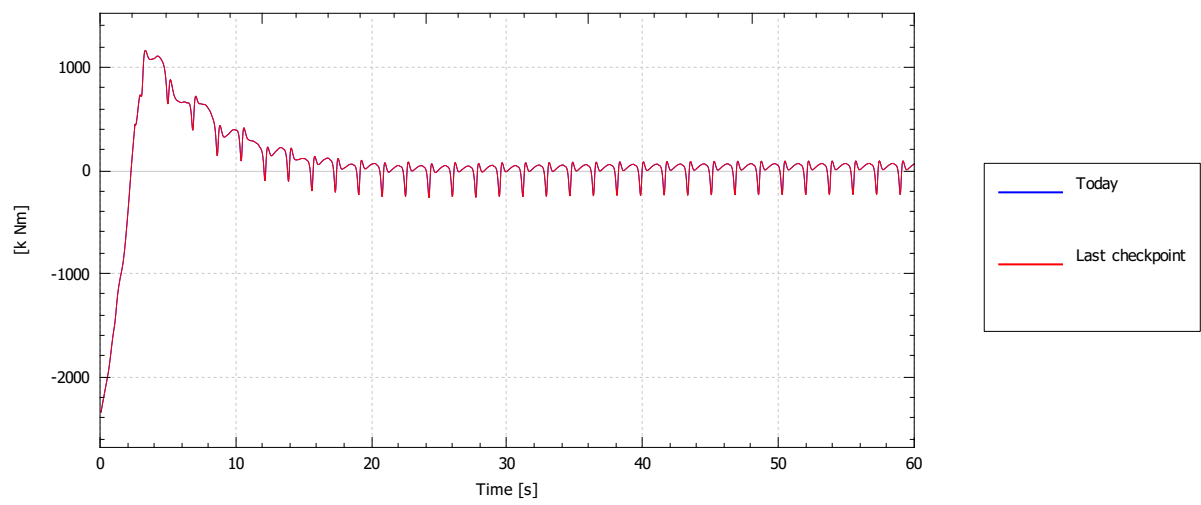


Generator

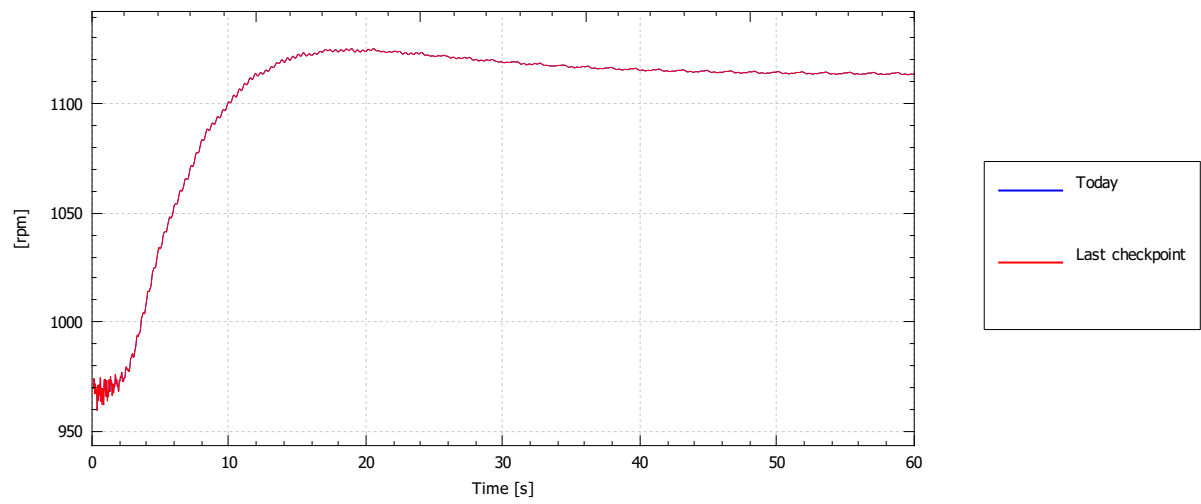




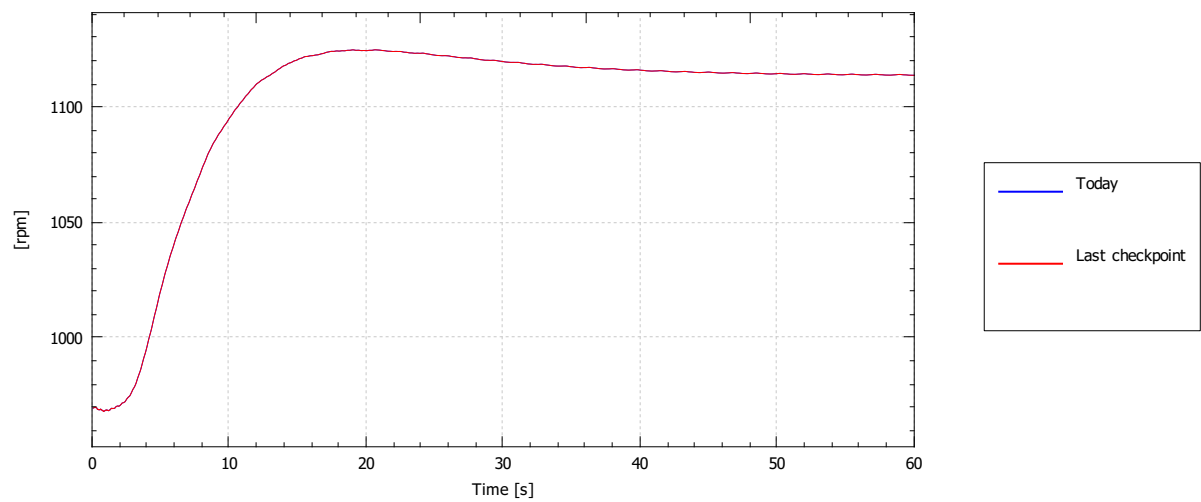
Torque diff. on main shaft



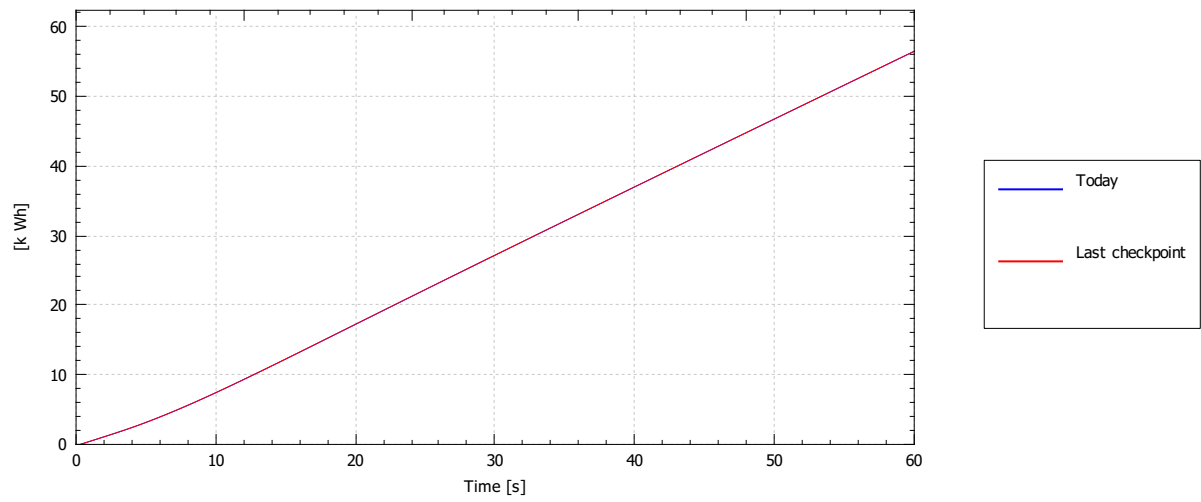
RPM



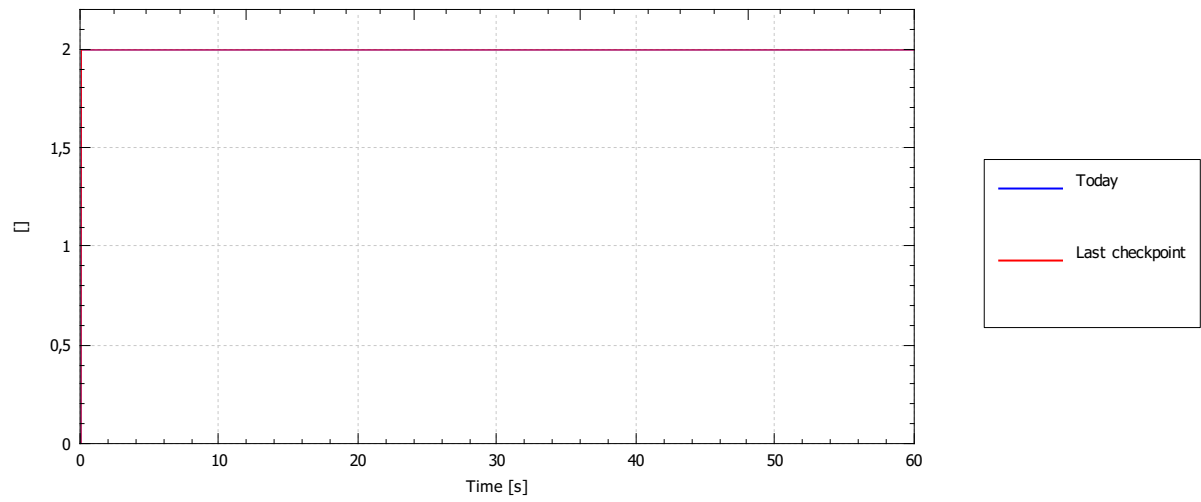
Filtered RPM



### Electricity production

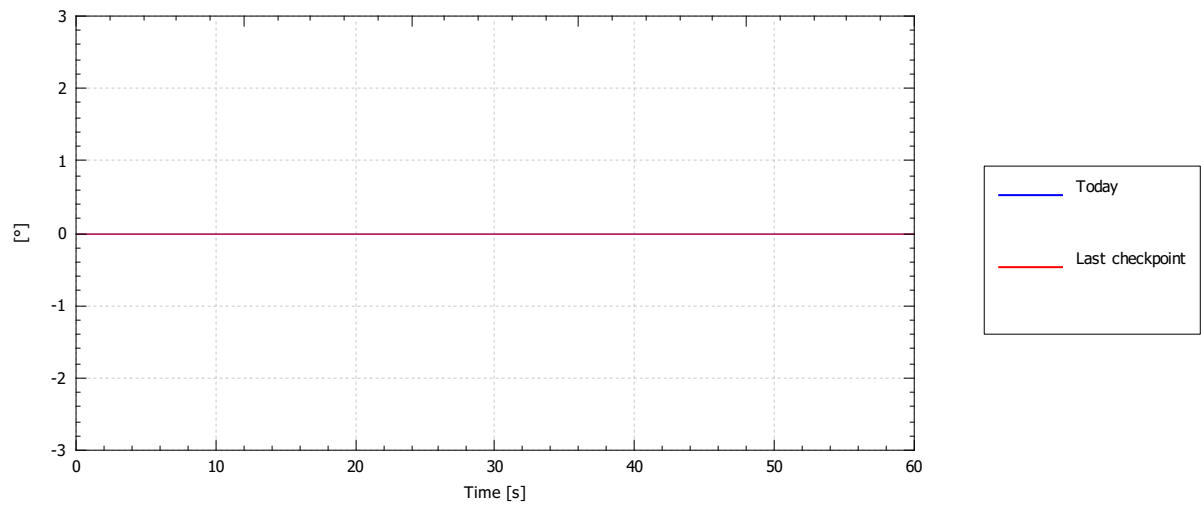


### Region

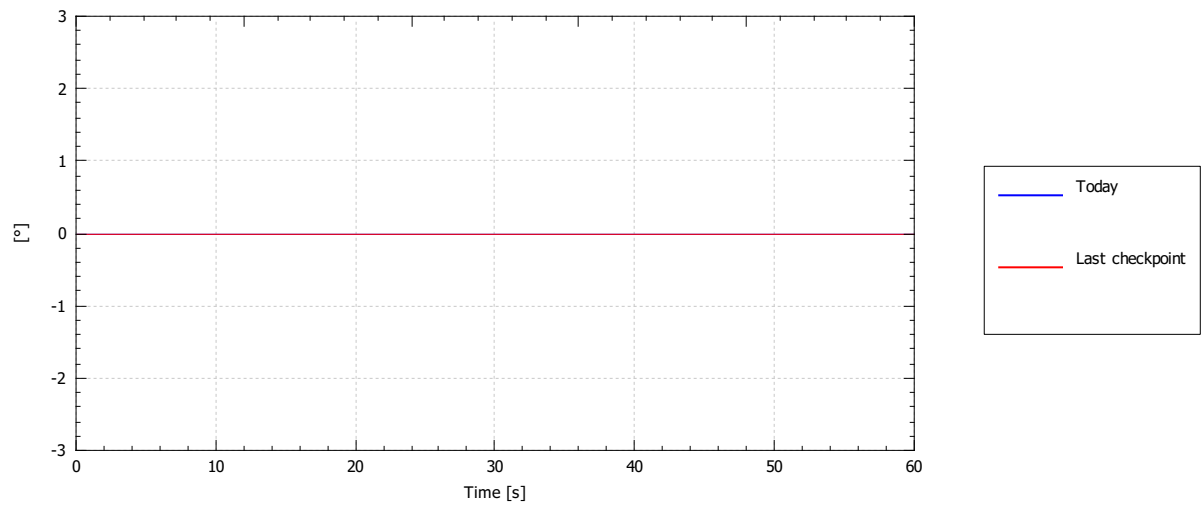


### Demanded pitch controller

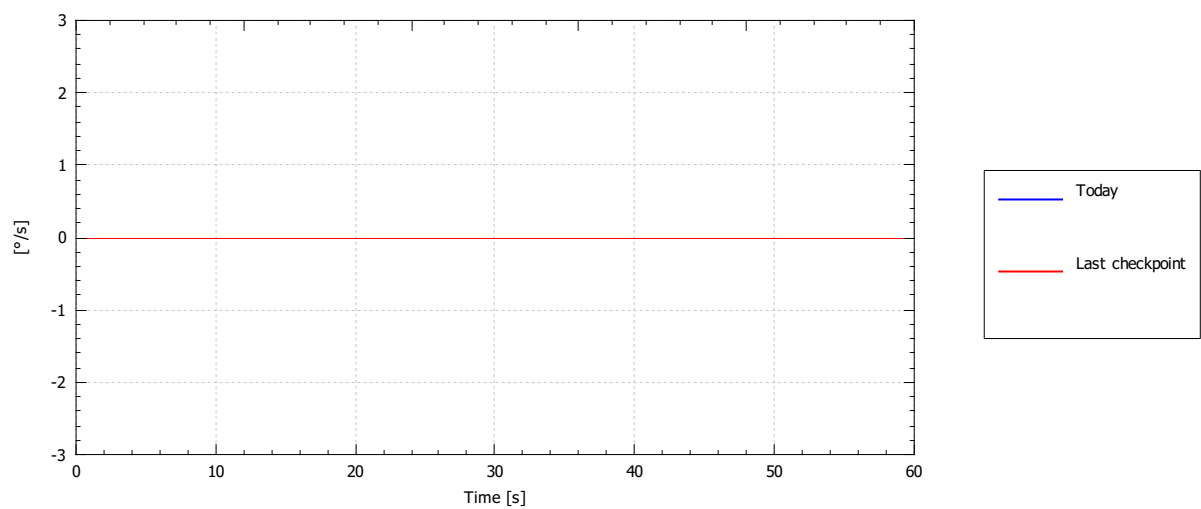
Demanded collective pitch angle



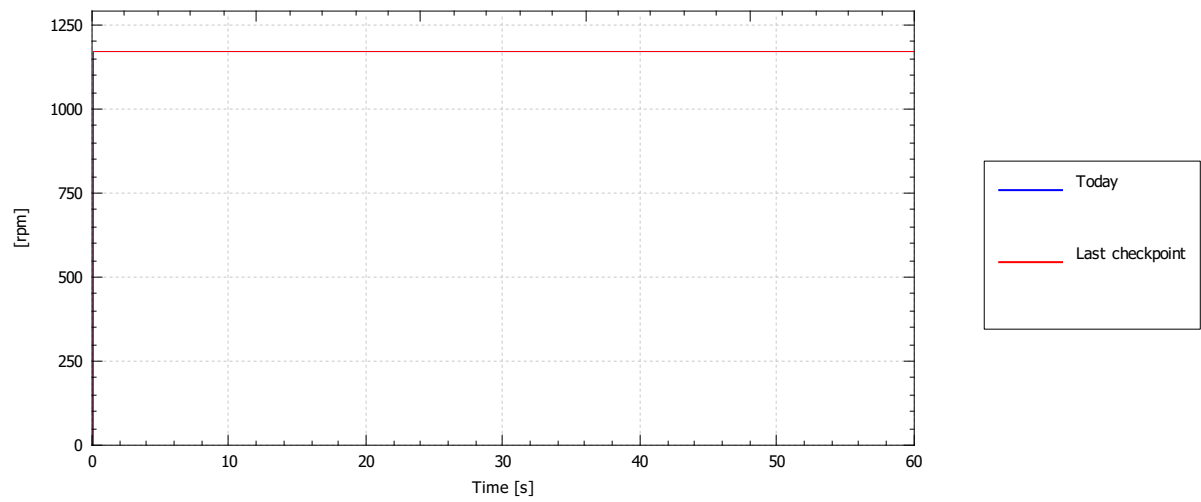
Cumulative demanded collective pitch angle



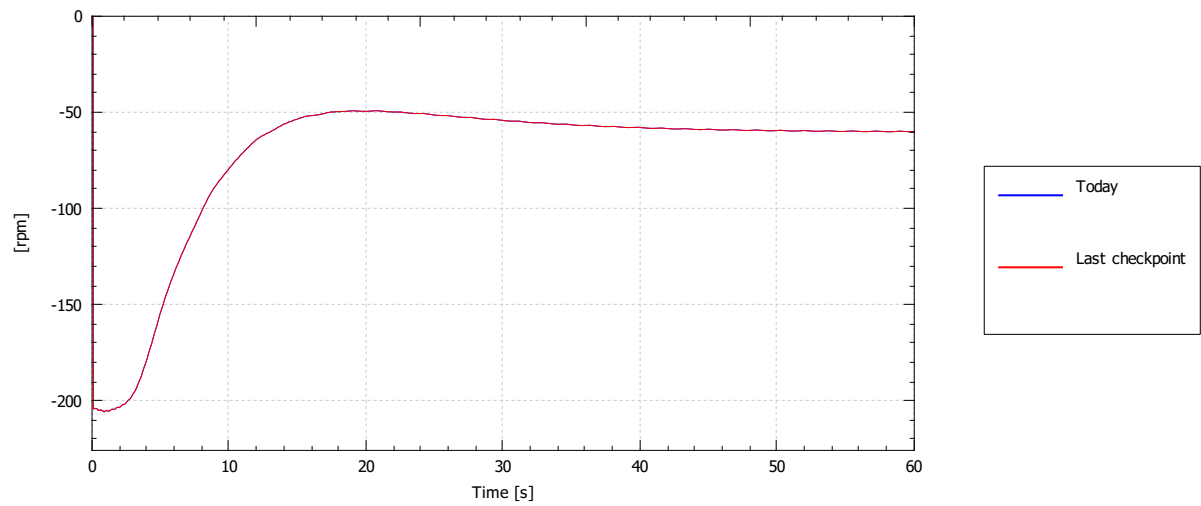
Demanded collective pitch angle rate



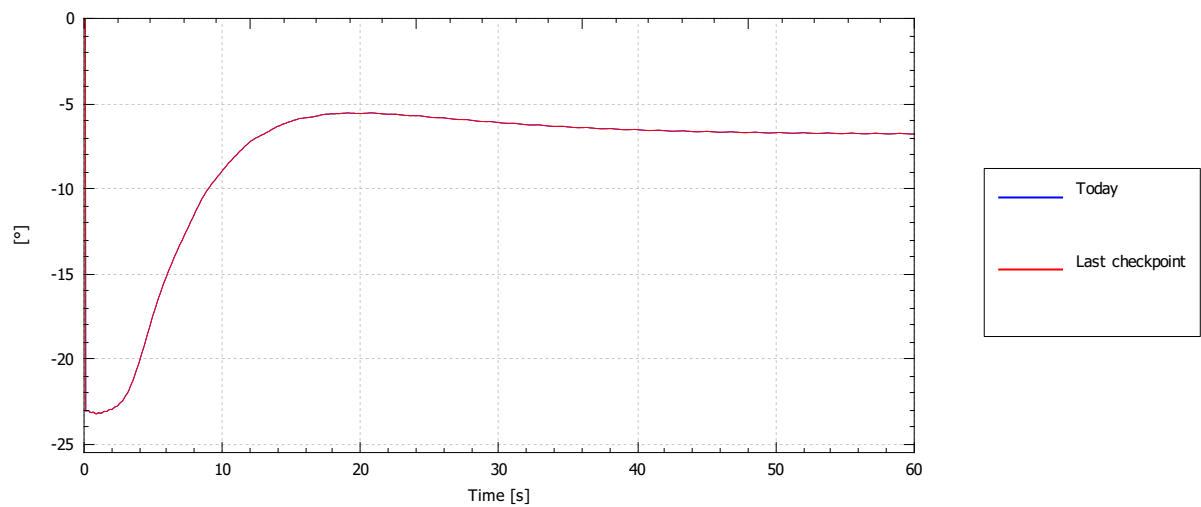
Set point



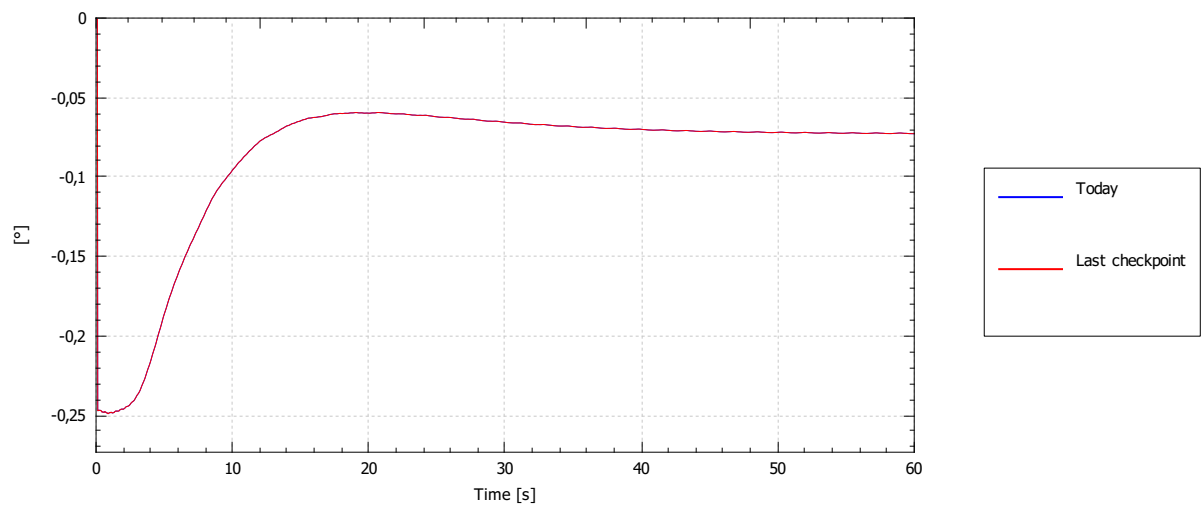
RPM error



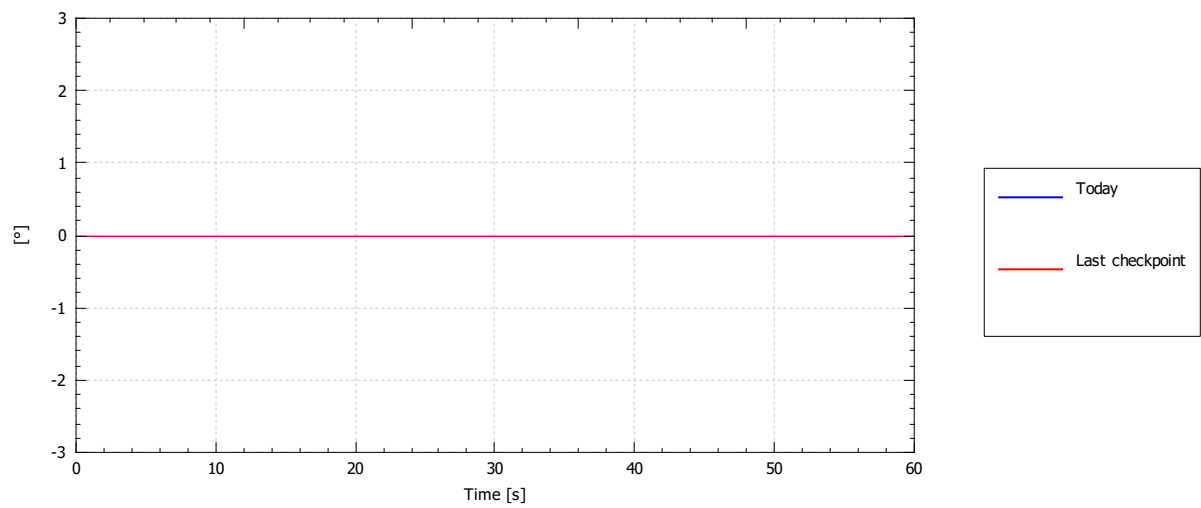
P term



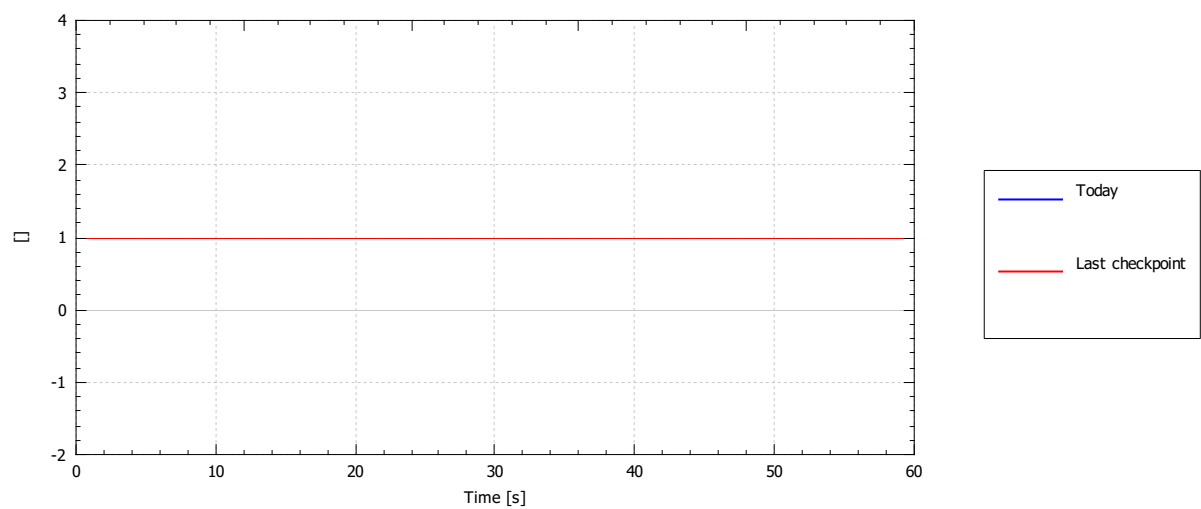
I term

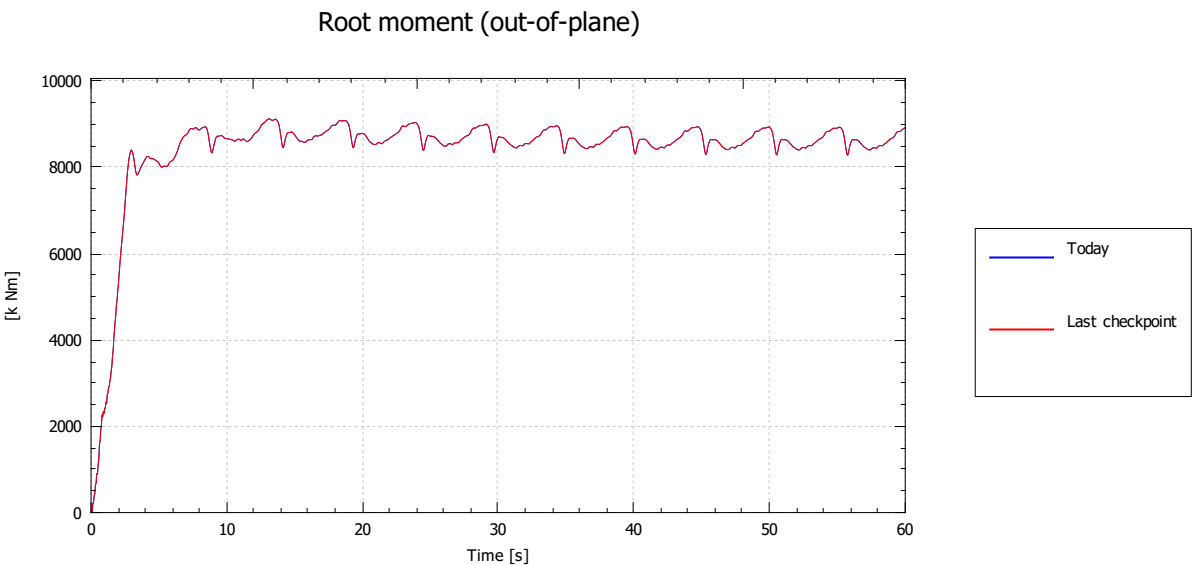
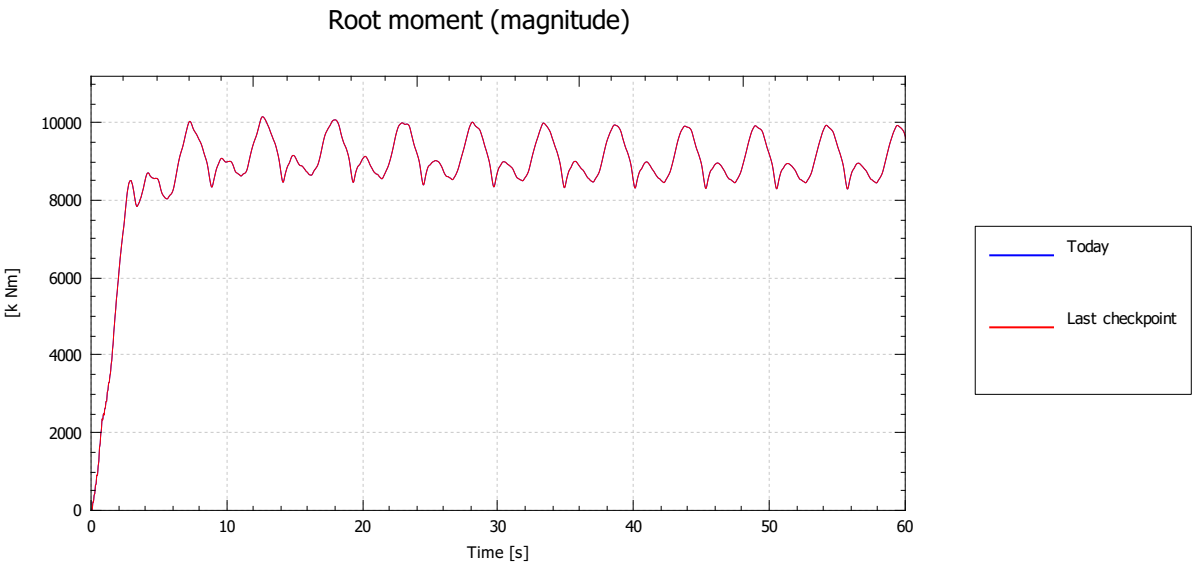
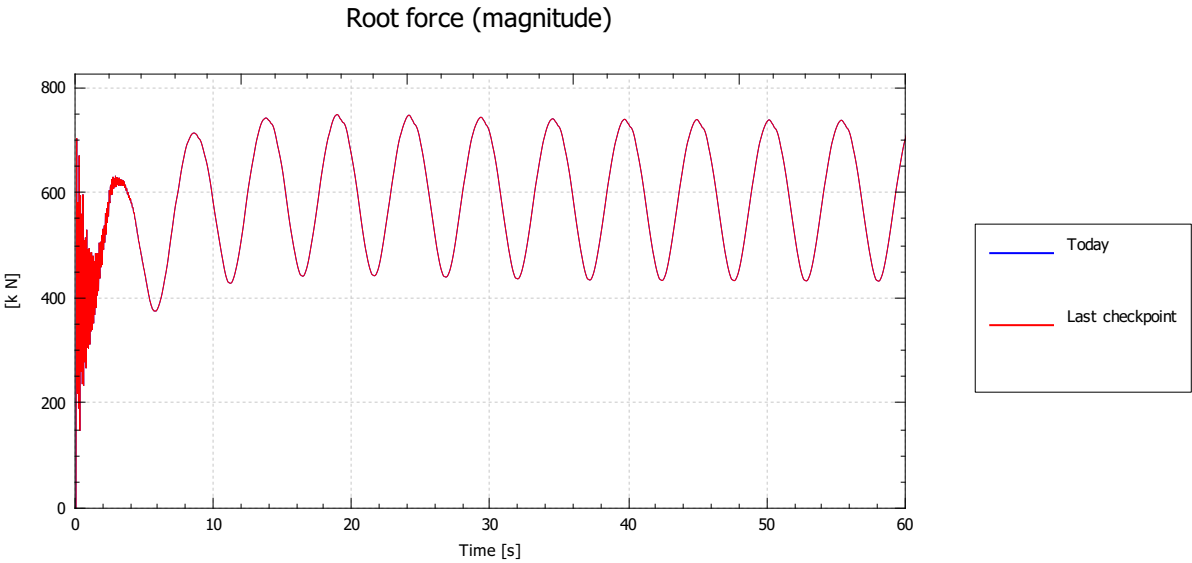


D term

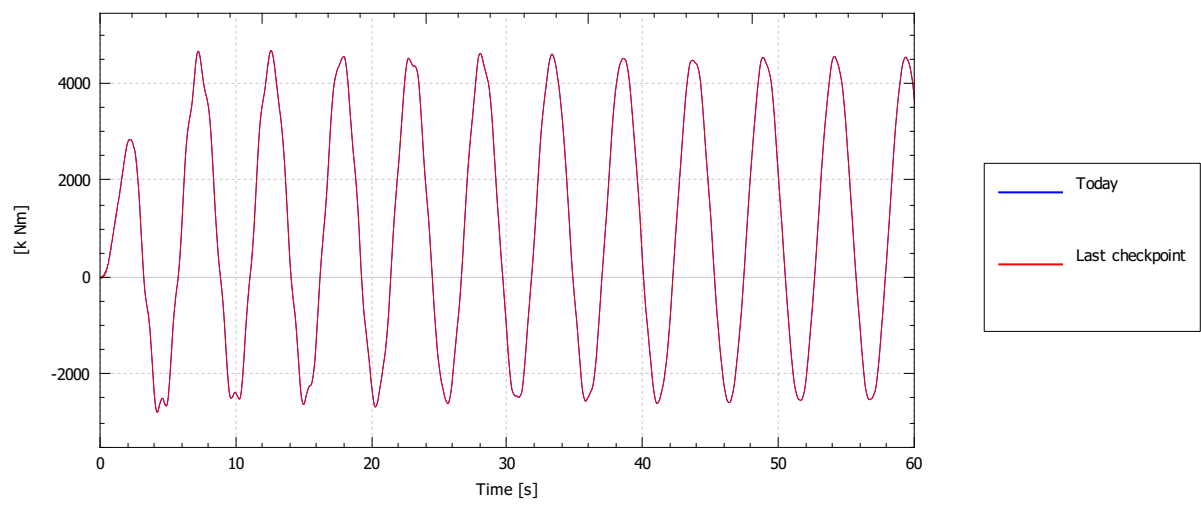


Gain scheduling factor

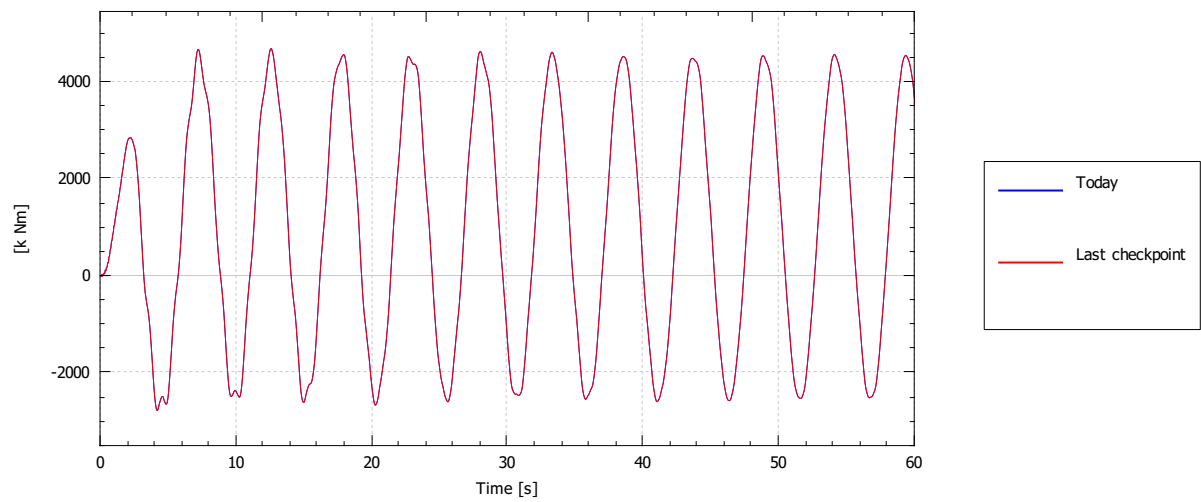




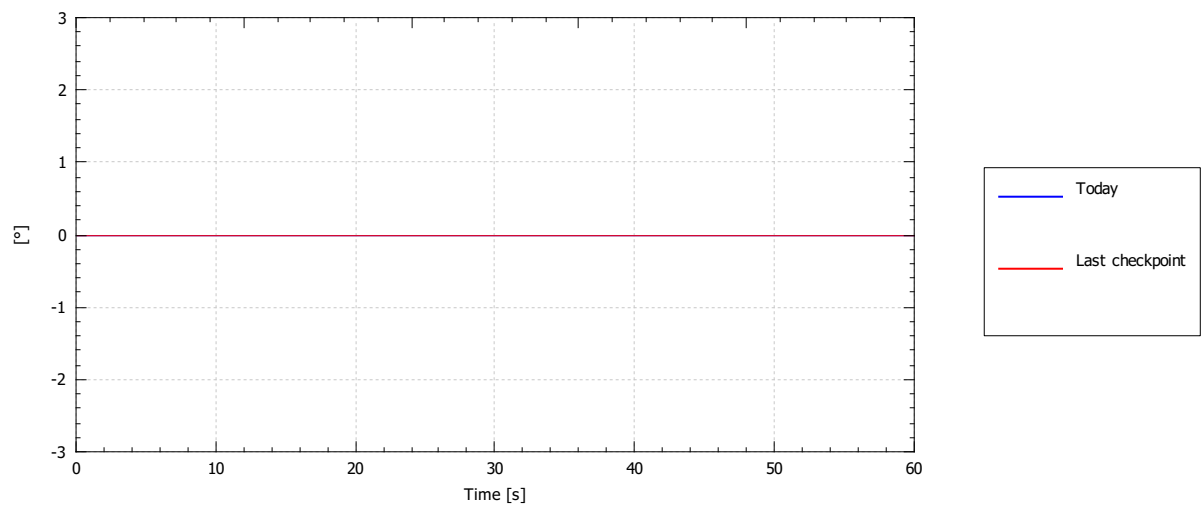
Root moment (in-plane)



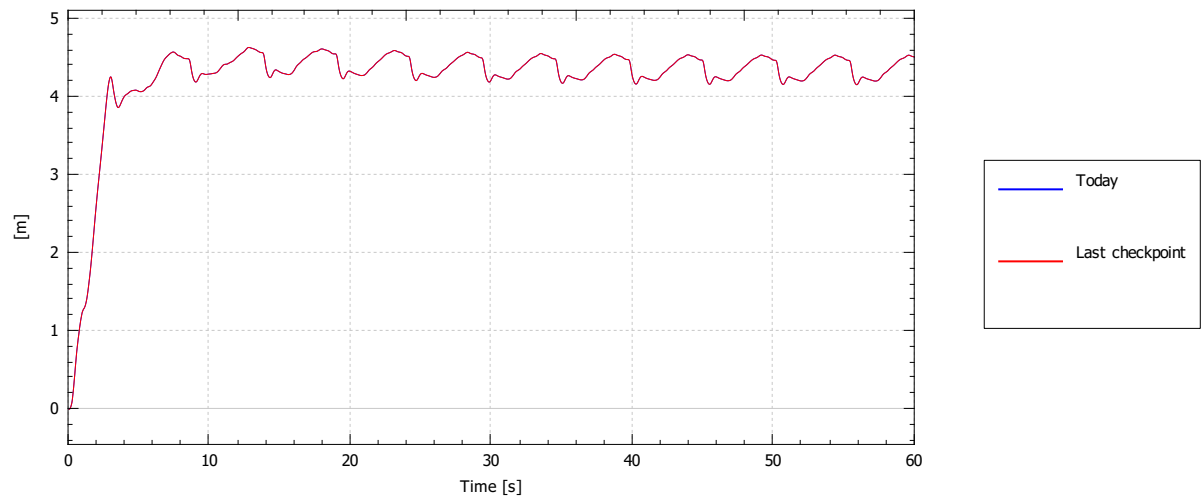
Root moment about shaft



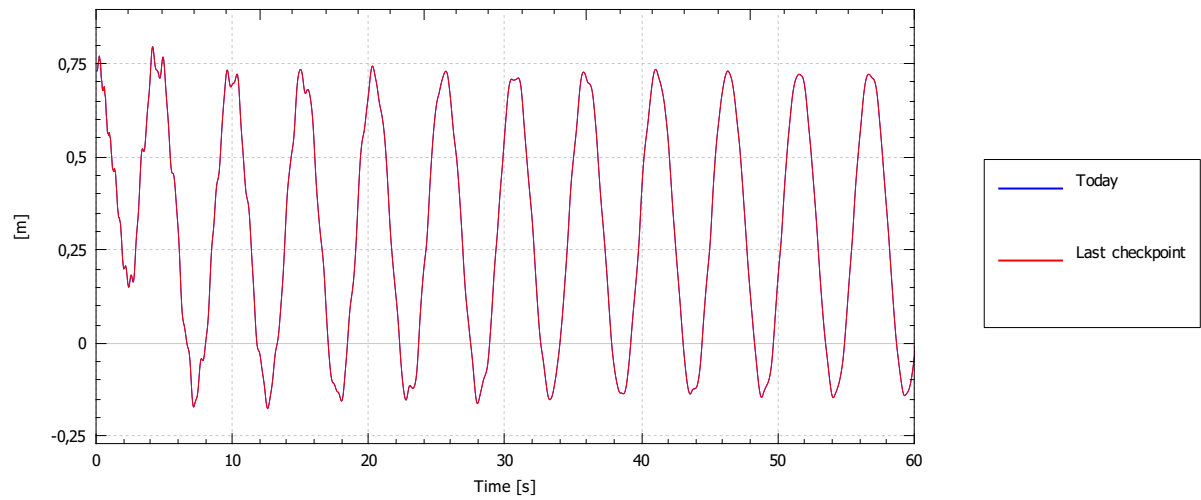
Pitch angle



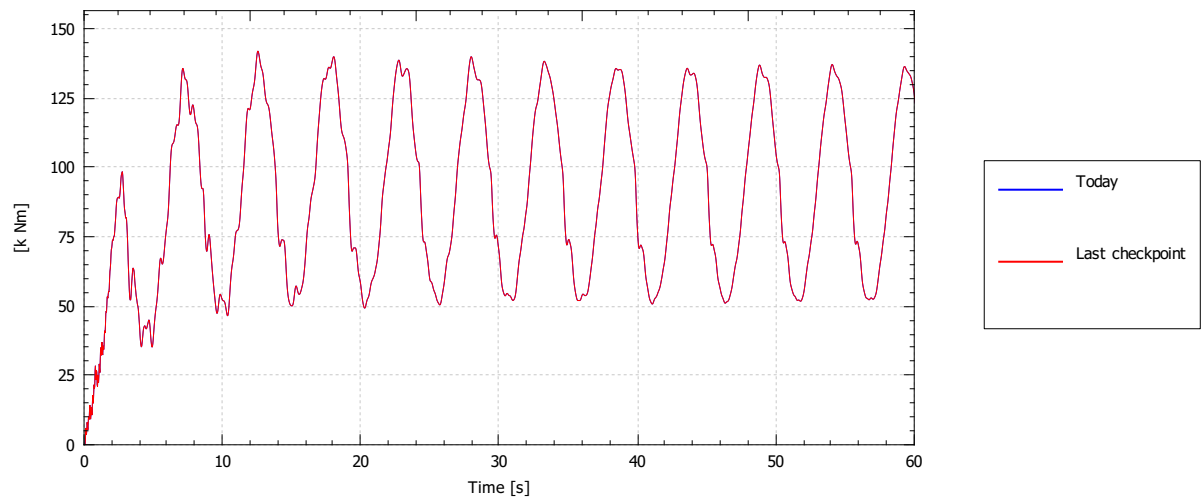
Tip deflection (out-of-plane)



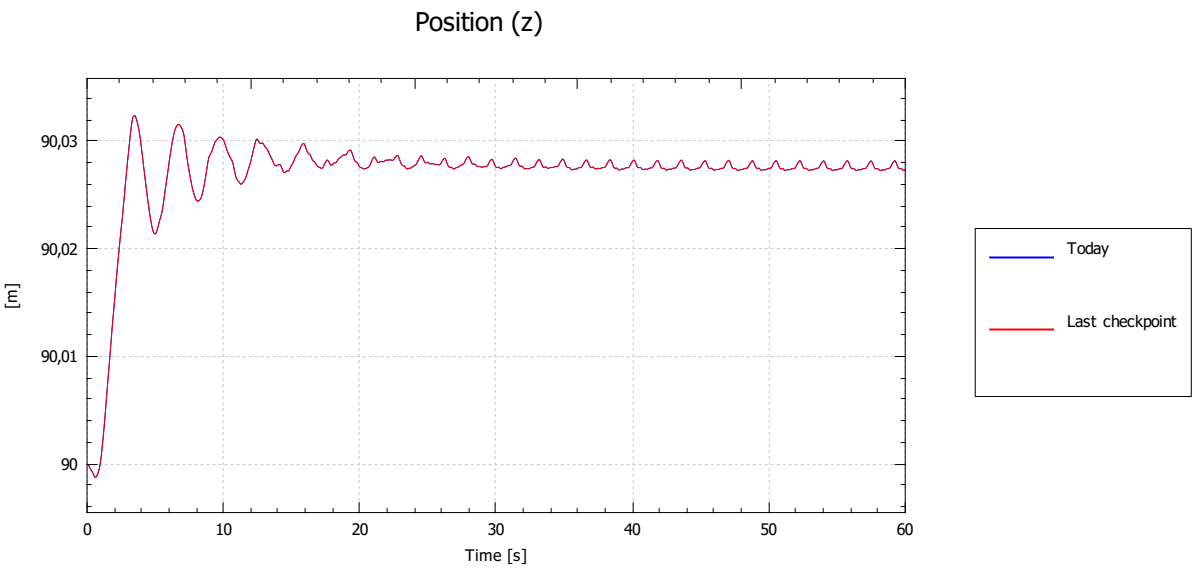
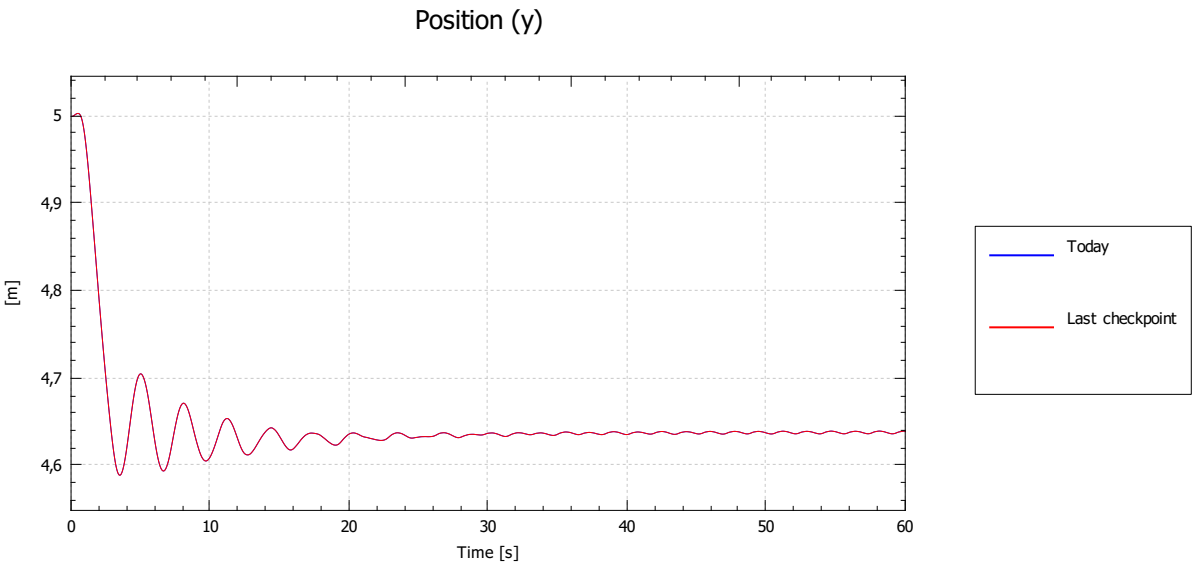
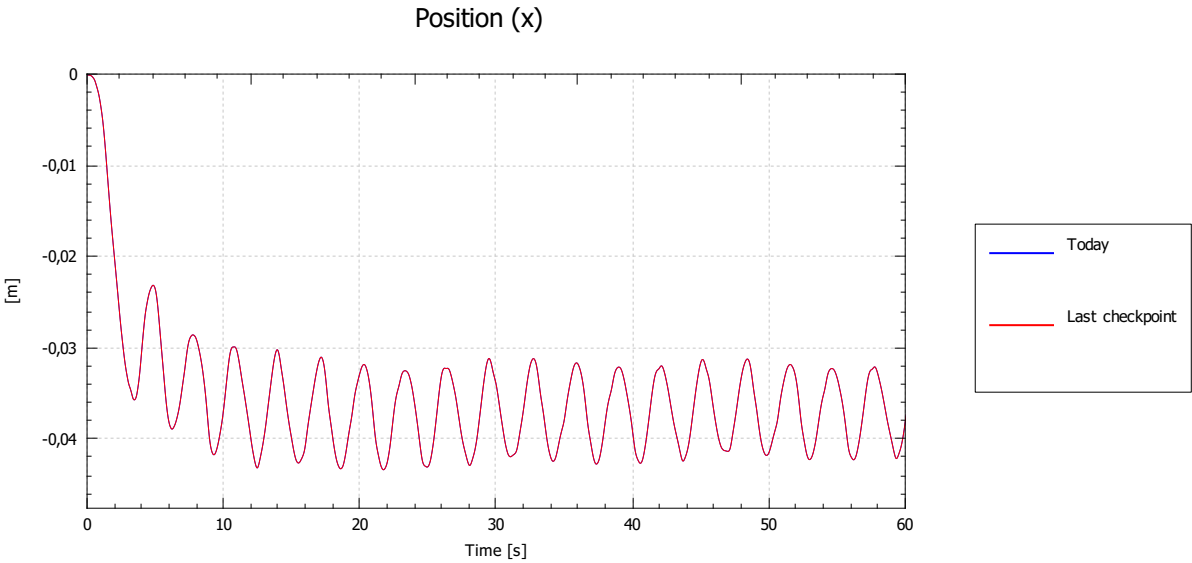
Tip deflection (in-plane)



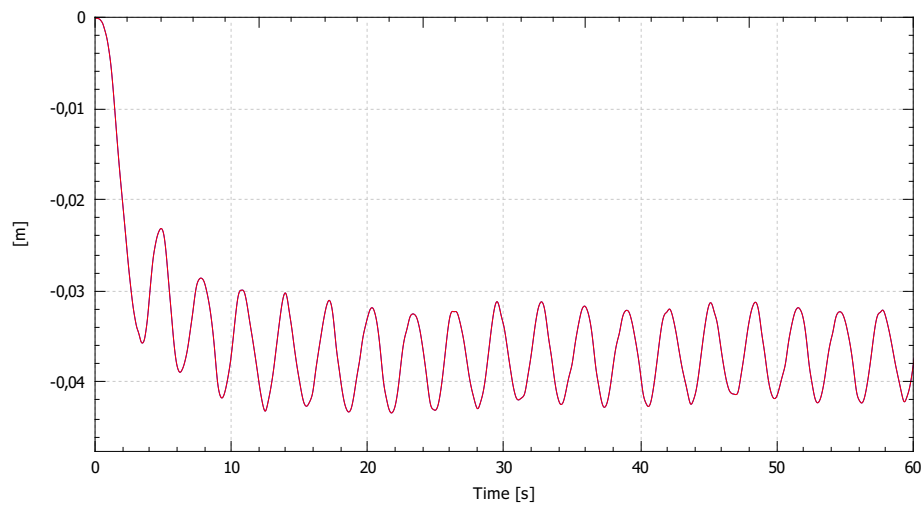
Root torque



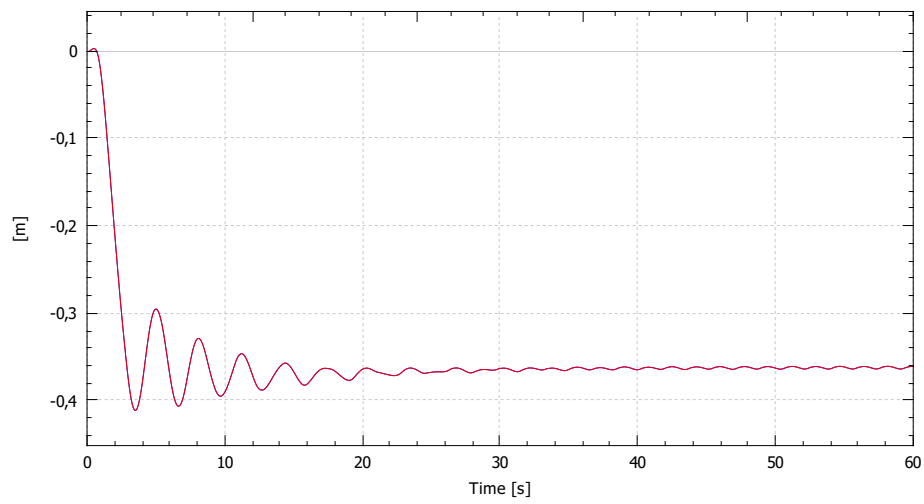




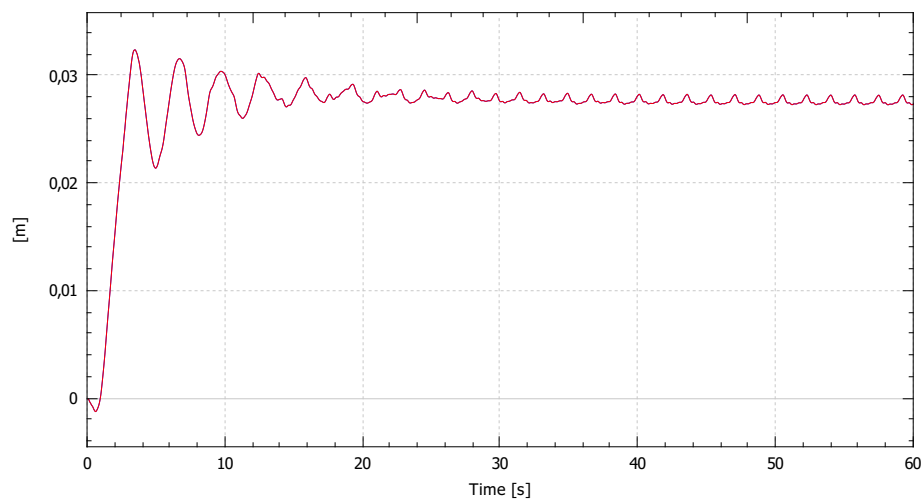
Displacement (u)



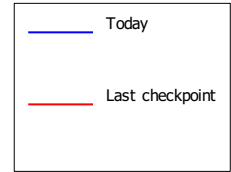
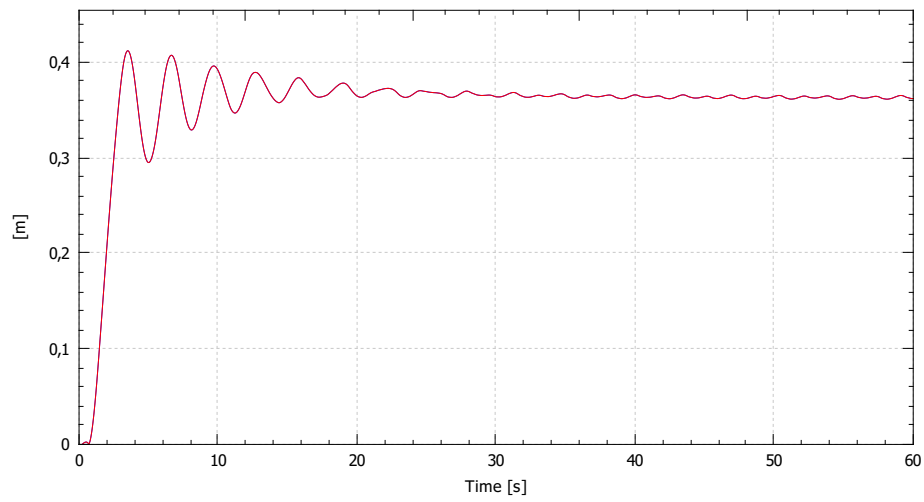
Displacement (v)



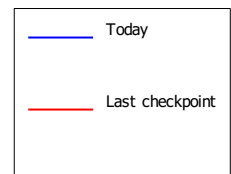
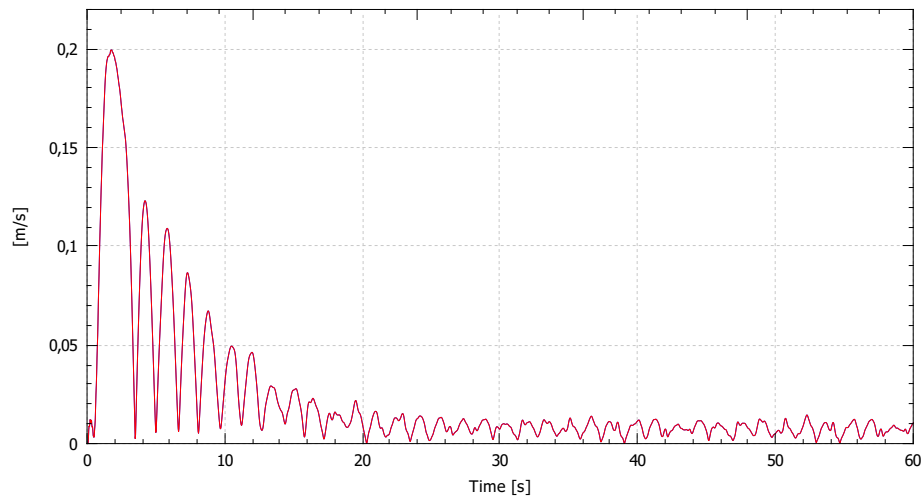
Displacement (w)



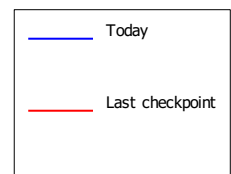
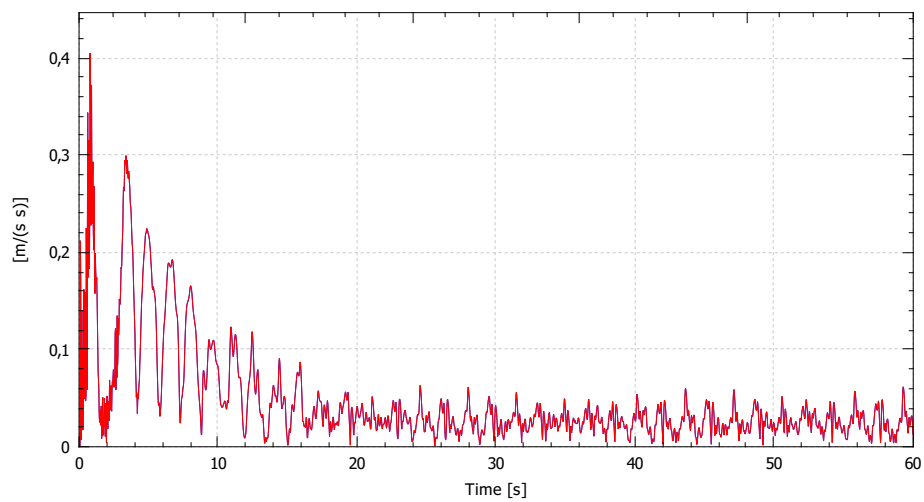
Displacement magnitude



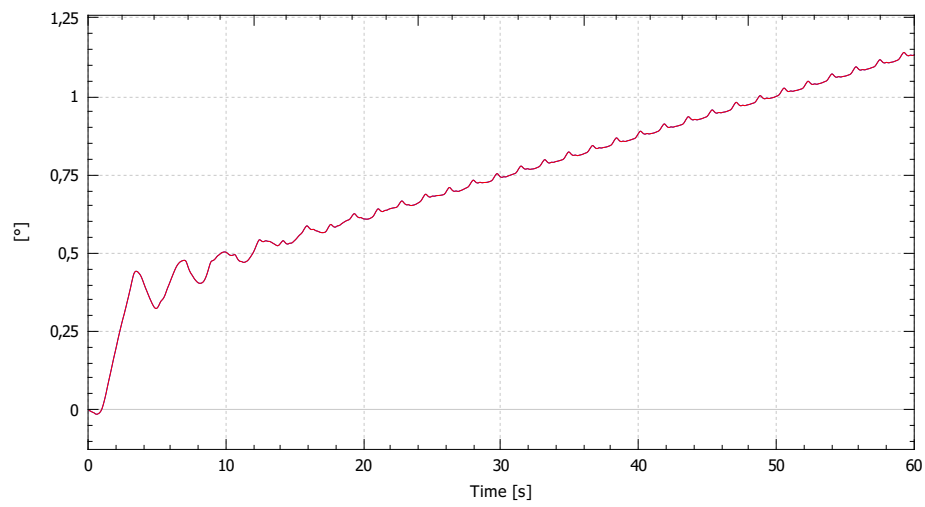
Speed



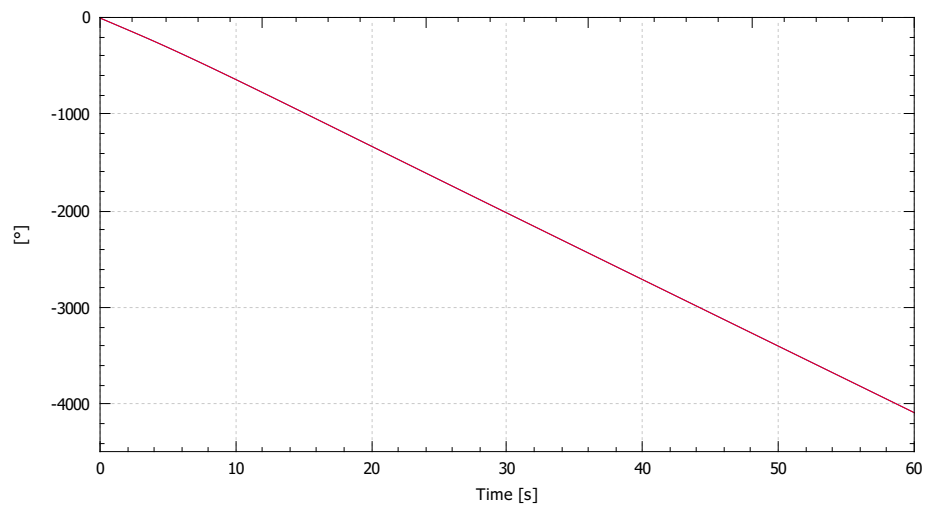
Acceleration, magnitude



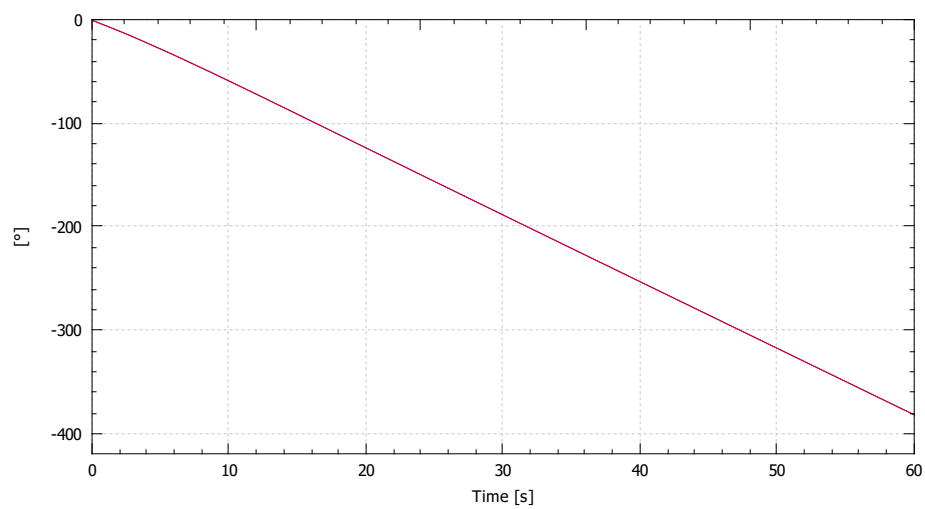
Rotational displacement (ru)



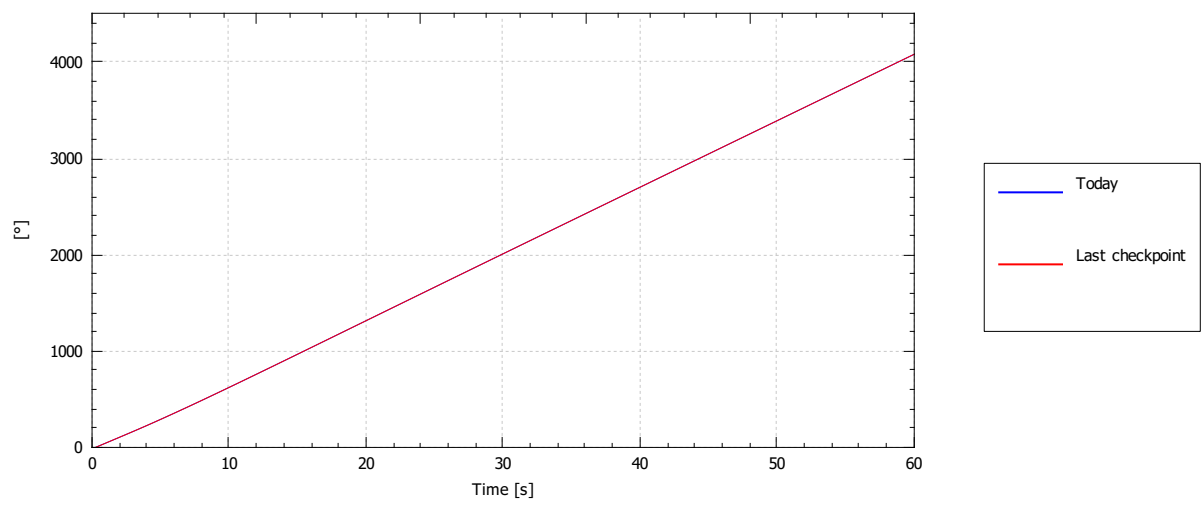
Rotational displacement (rv)



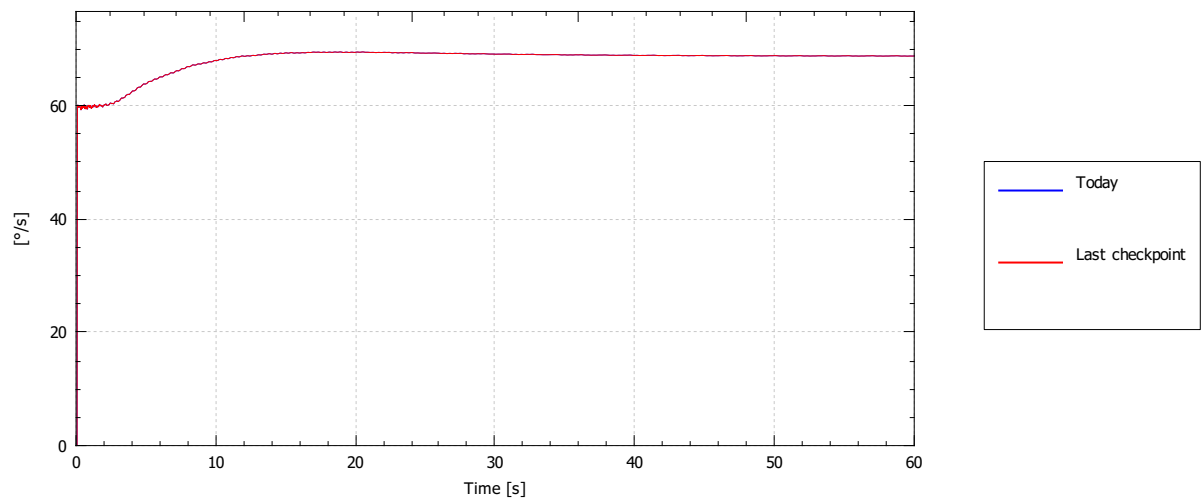
Rotational displacement (rw)



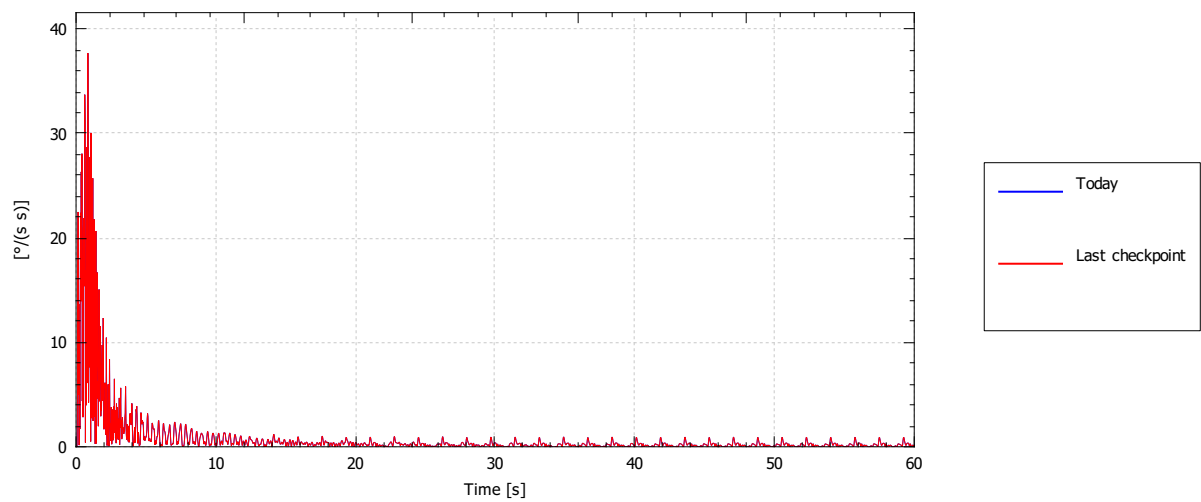
Rotational displacement magnitude



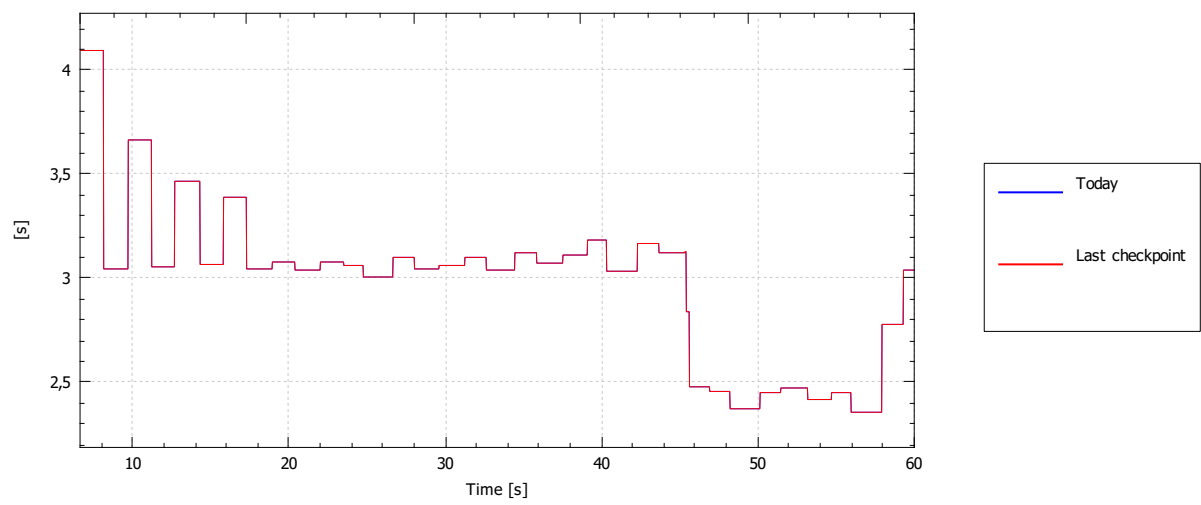
Rotational speed



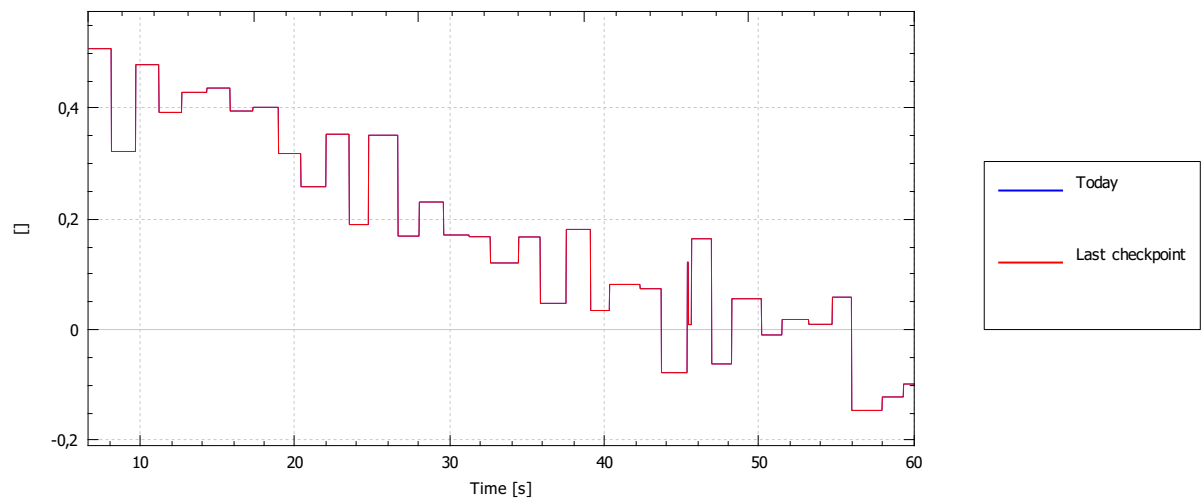
Rotational acceleration mag



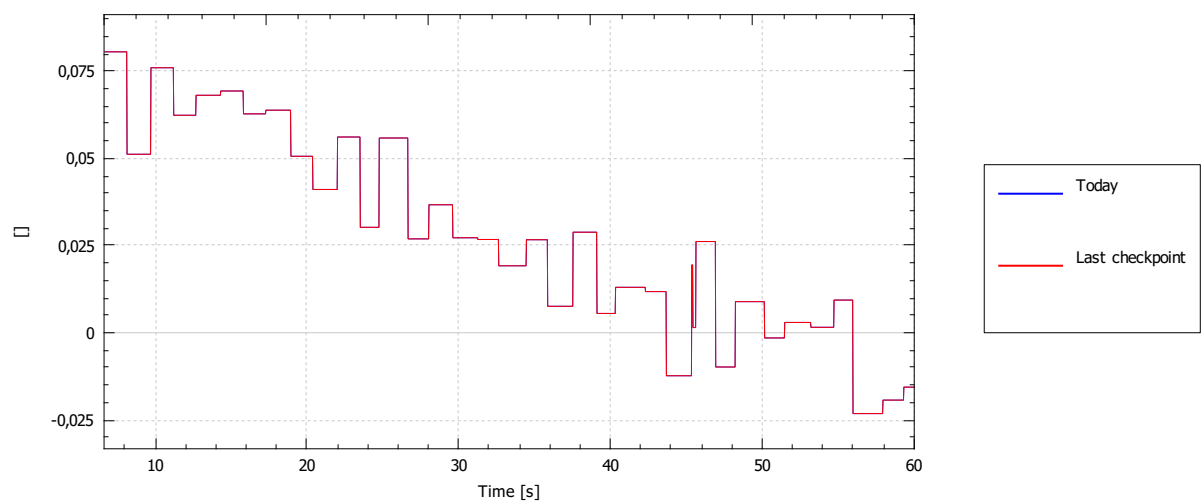
Displacement period



Displacement logarithmic decrement

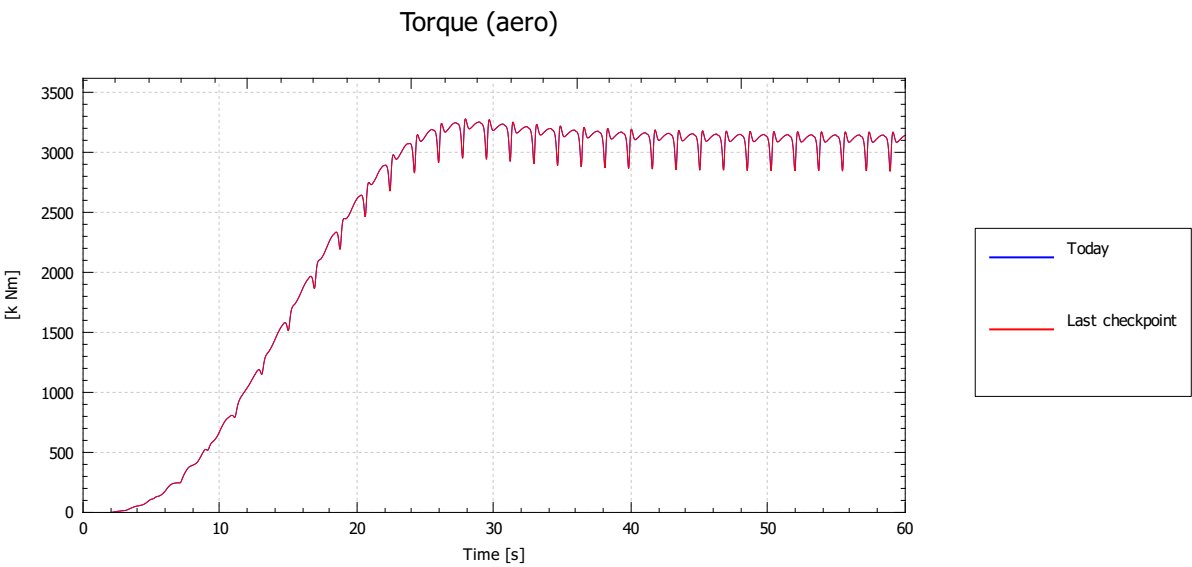
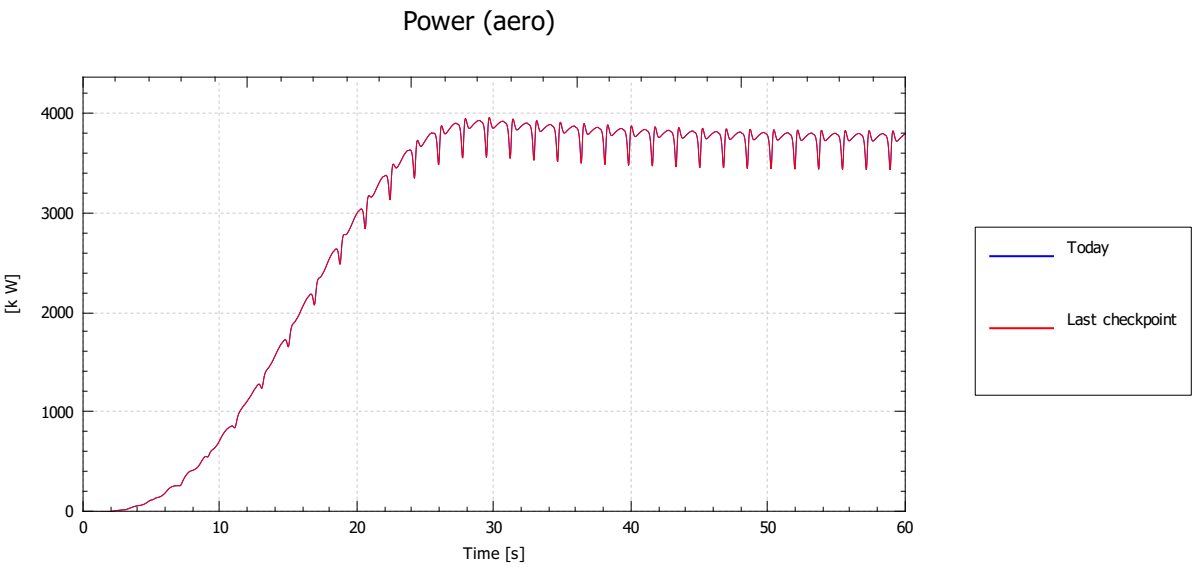


Displacement damping ratio

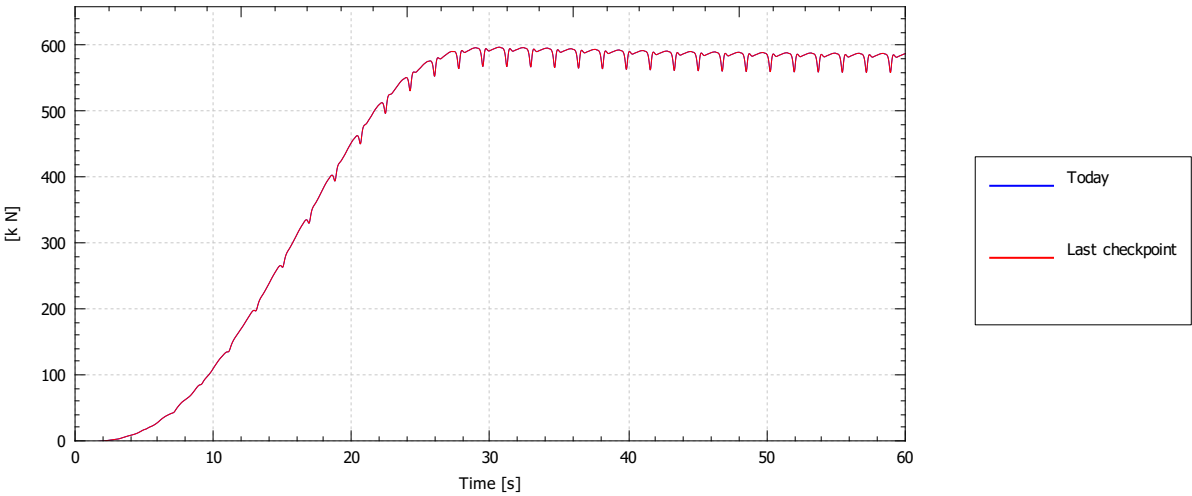


Load case: Scheme duration

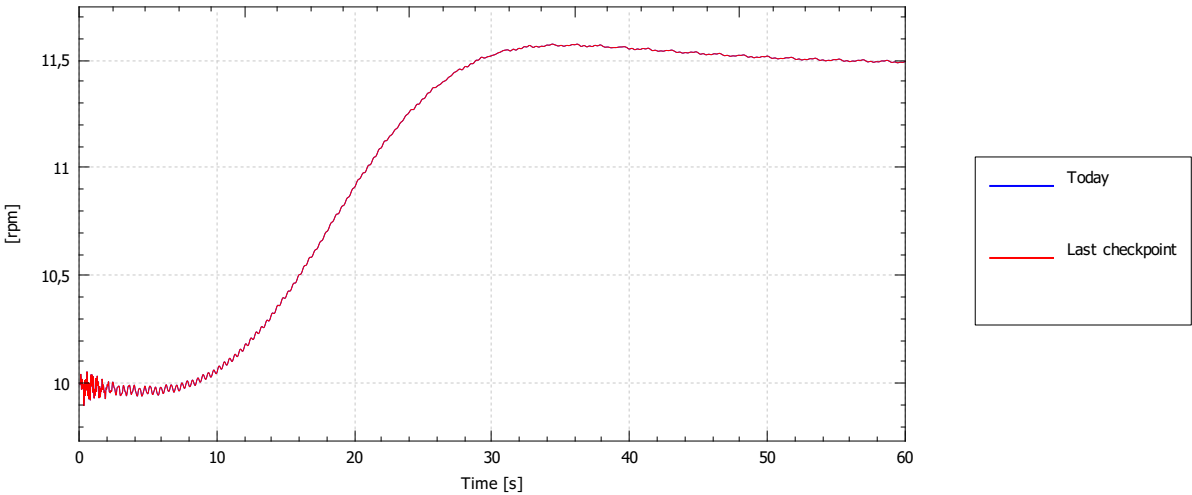
Rotor



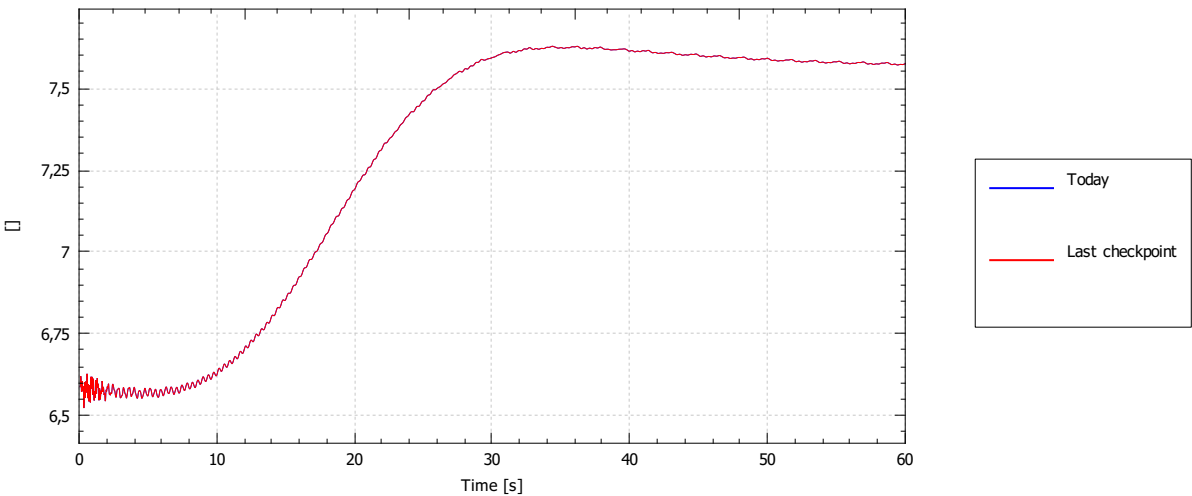
Thrust (aero)



RPM

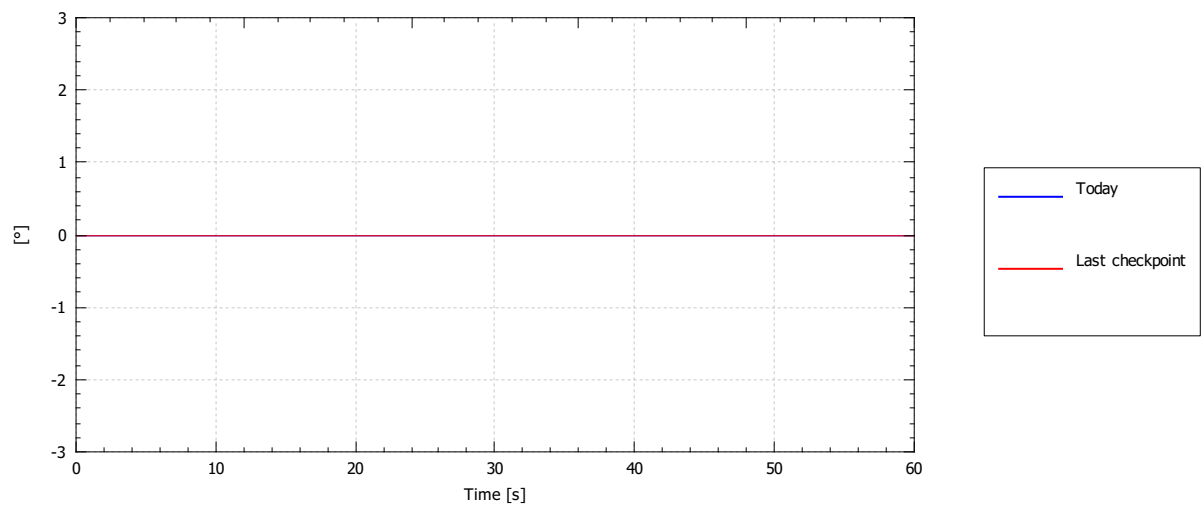


TSR

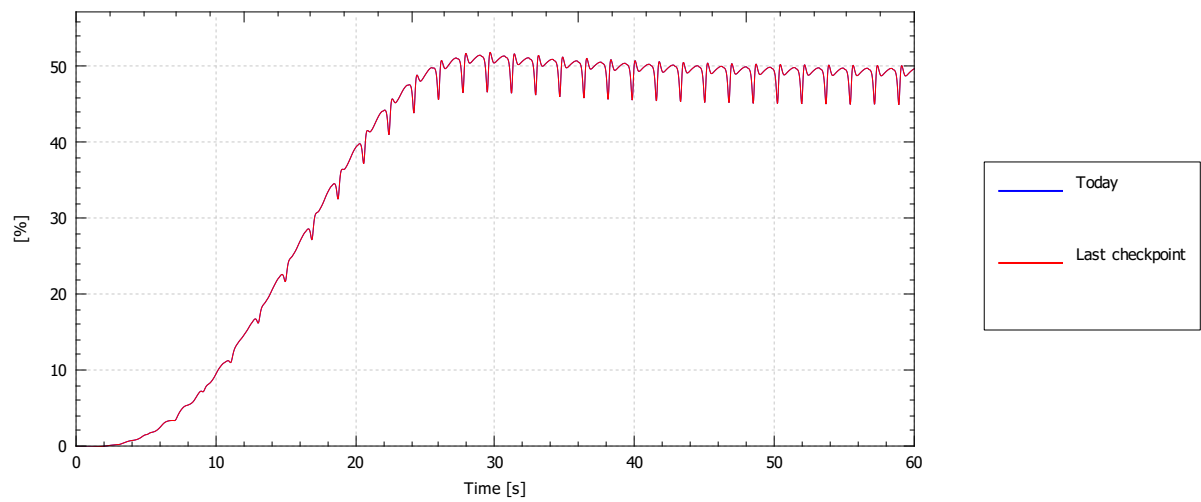




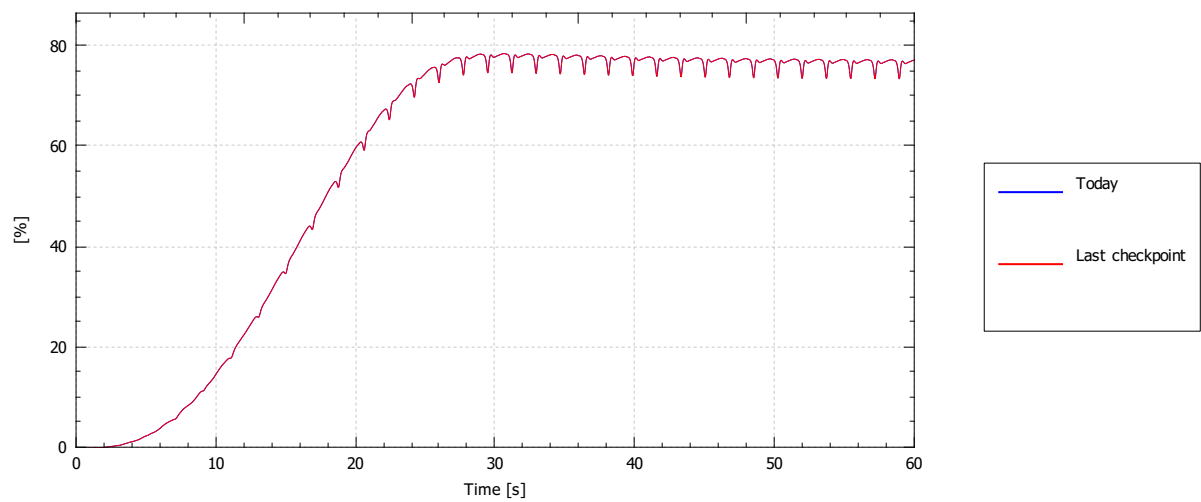
Representative demanded pitch angle



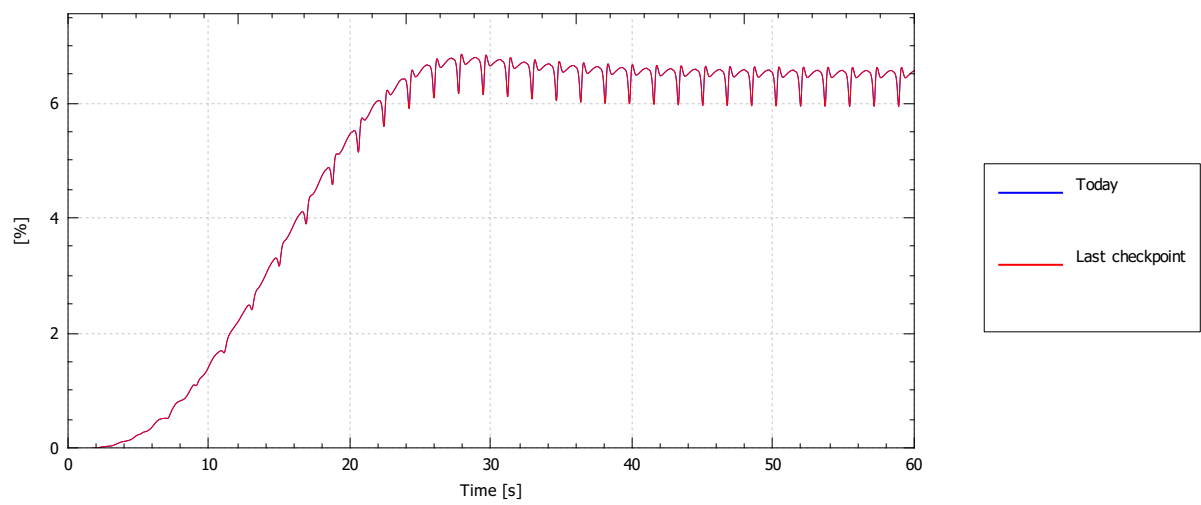
Power coef. (CP)



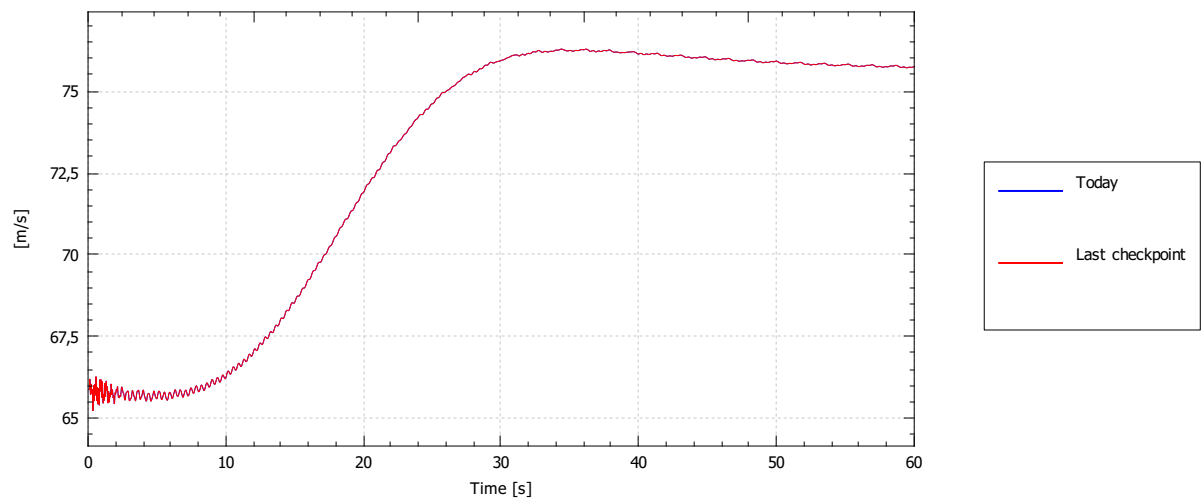
Thrust coef. (CT)



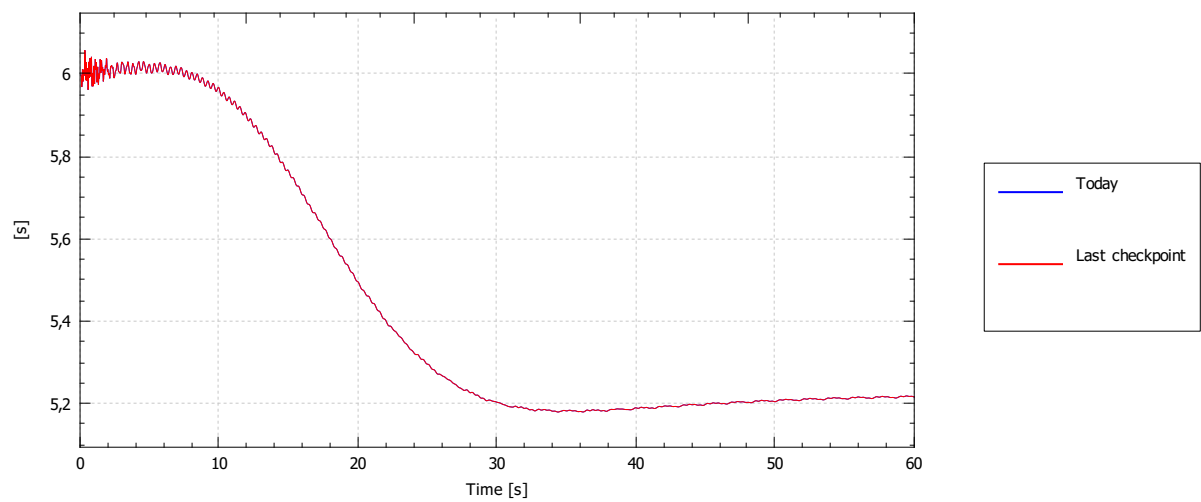
Torque coef. (CQ)



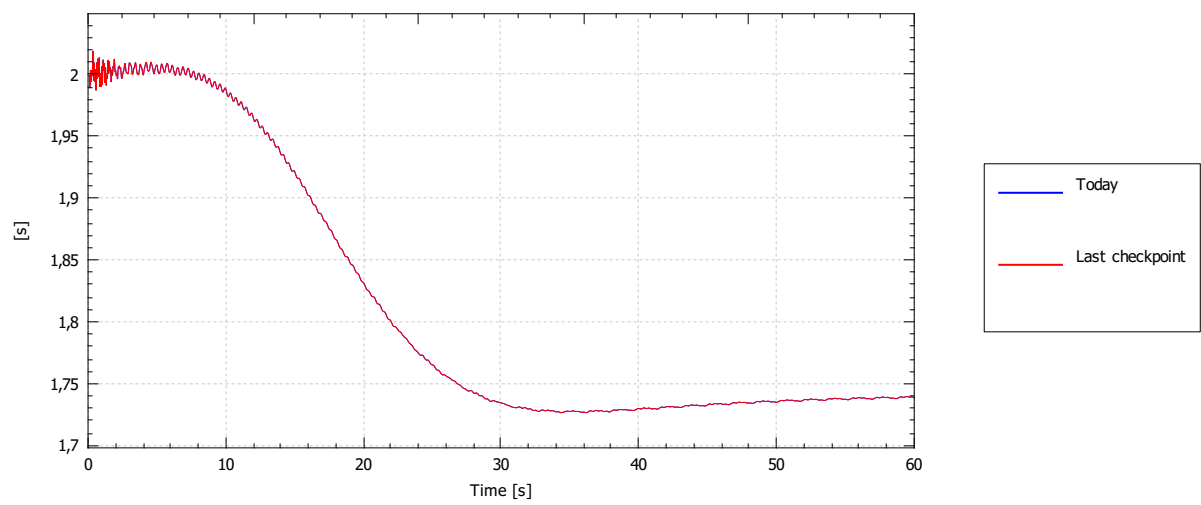
Tip speed



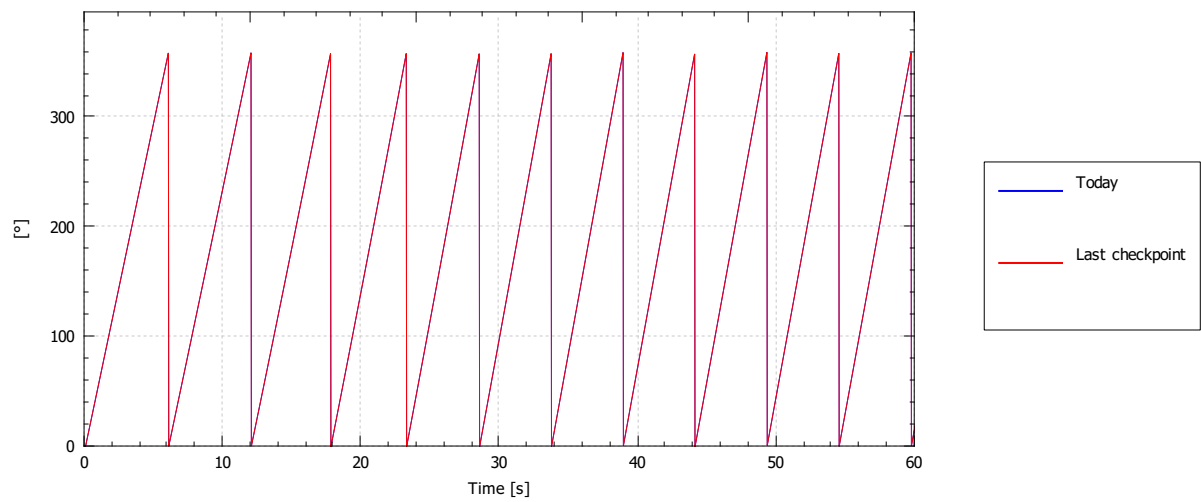
1P (one revolution)



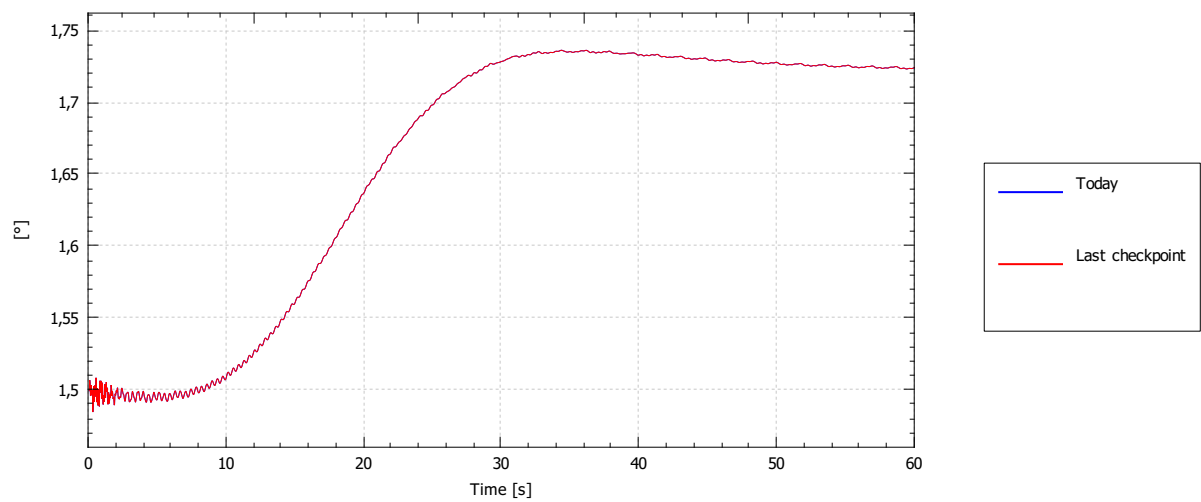
nP (blade passing)



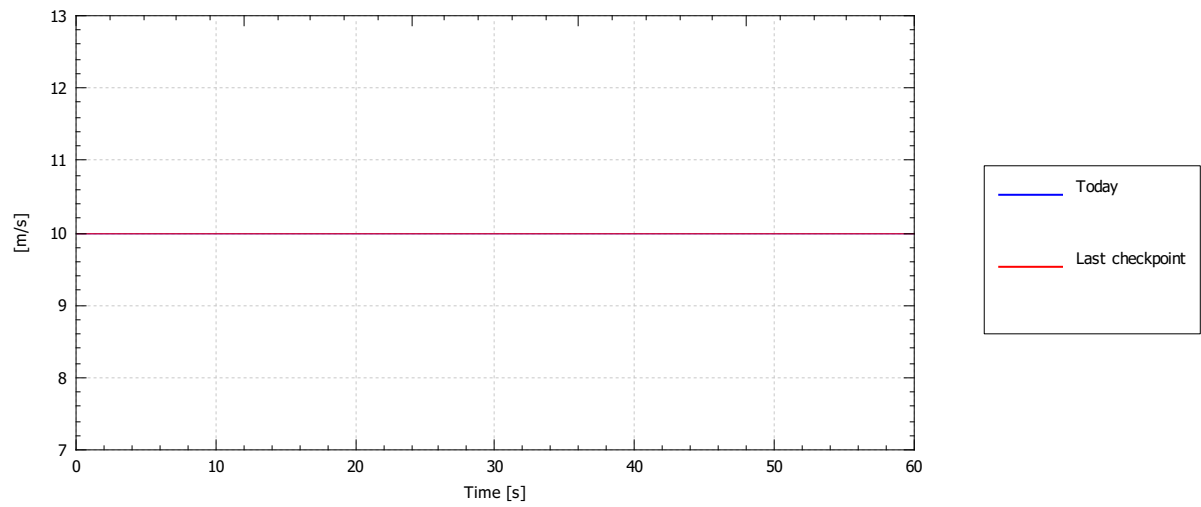
Azimuth angle



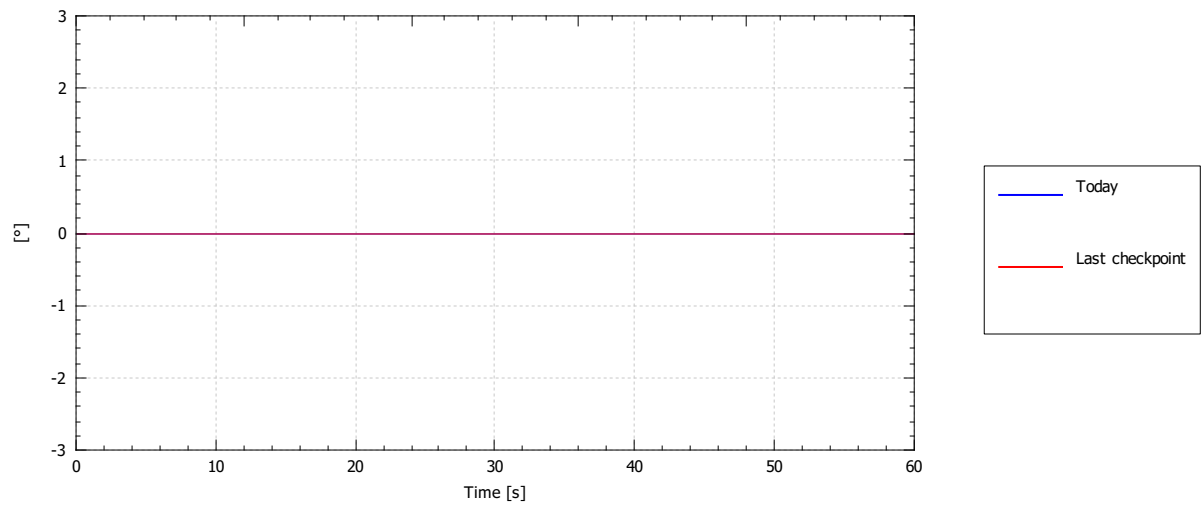
Rotation per timestep



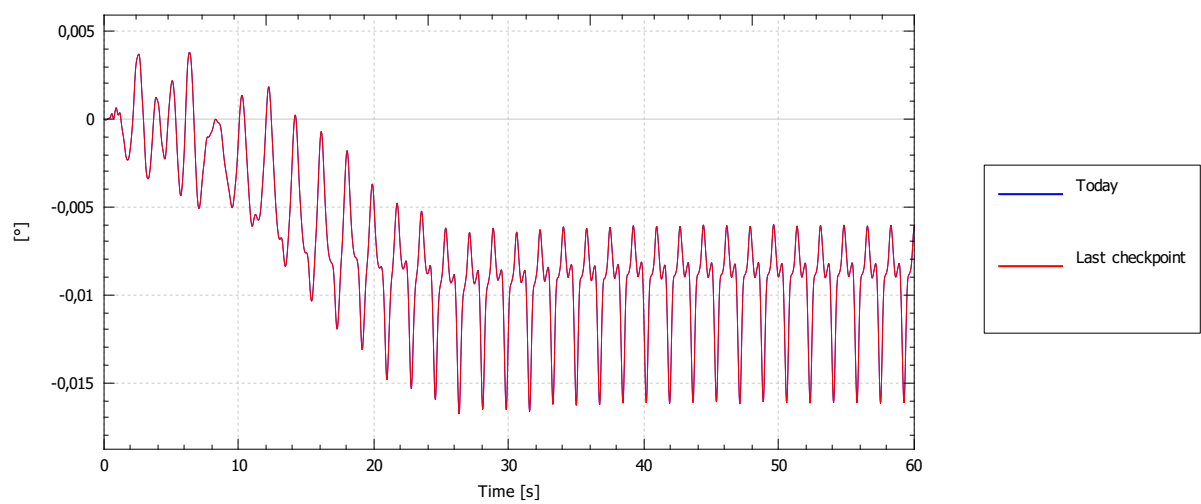
Wind speed at hub, magnitude



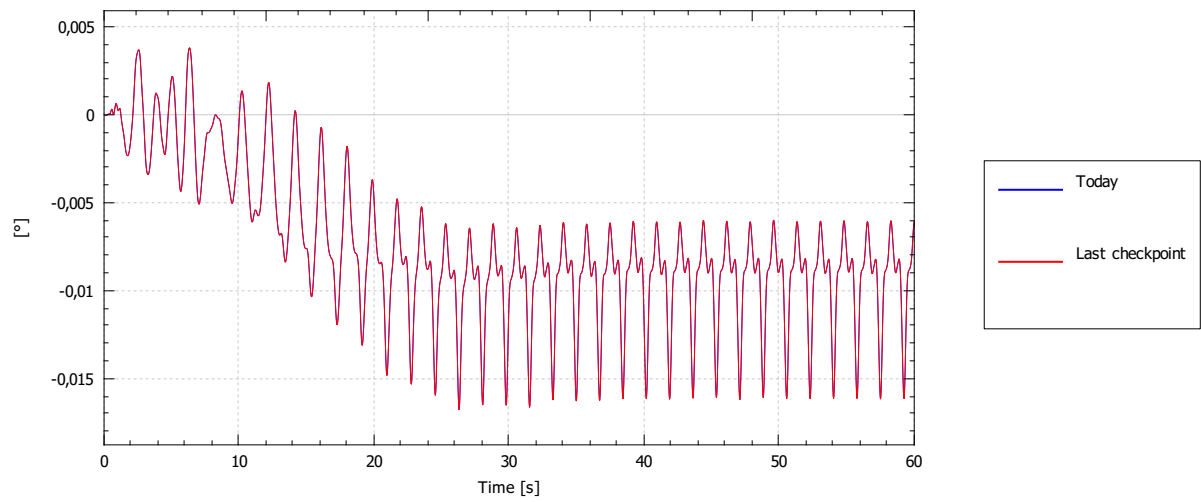
Wind angle at hub



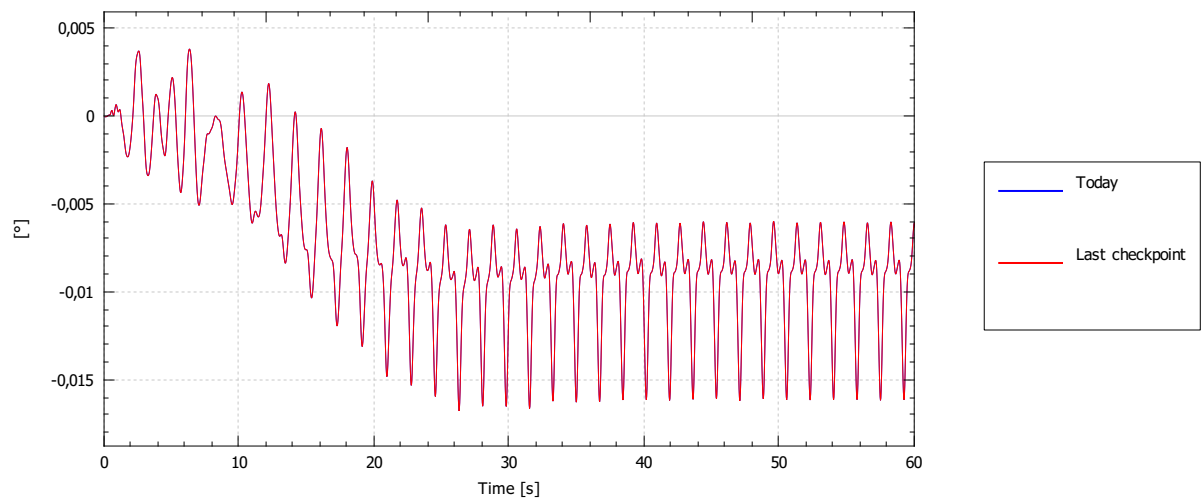
Yaw angle relative to forward



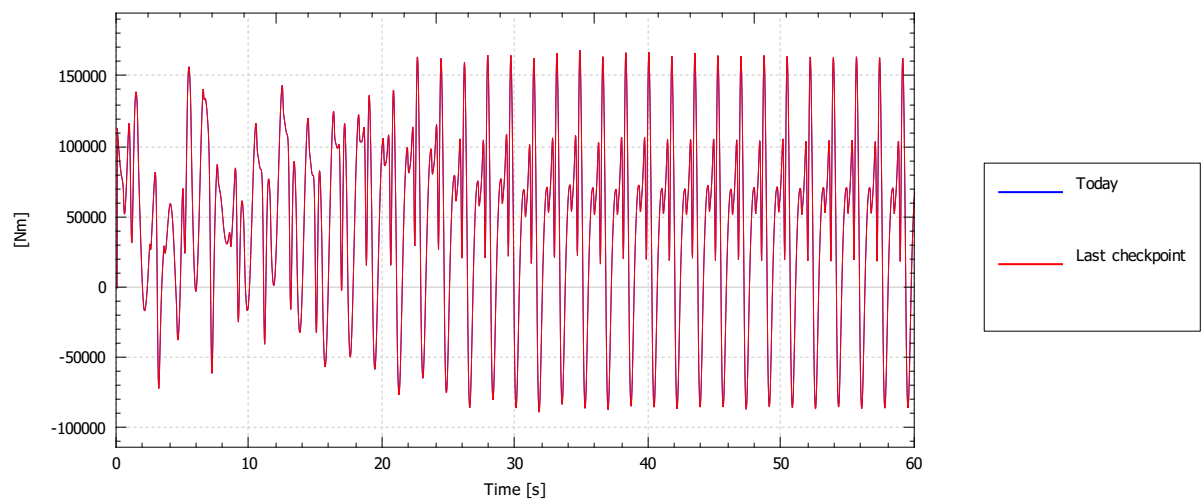
Yaw angle to reference direction



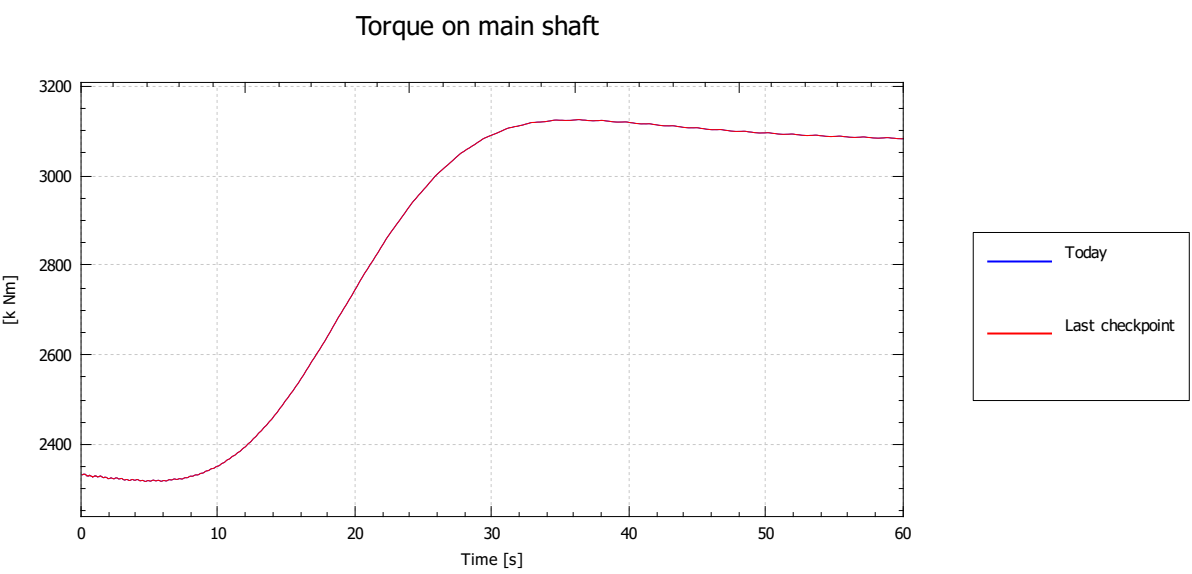
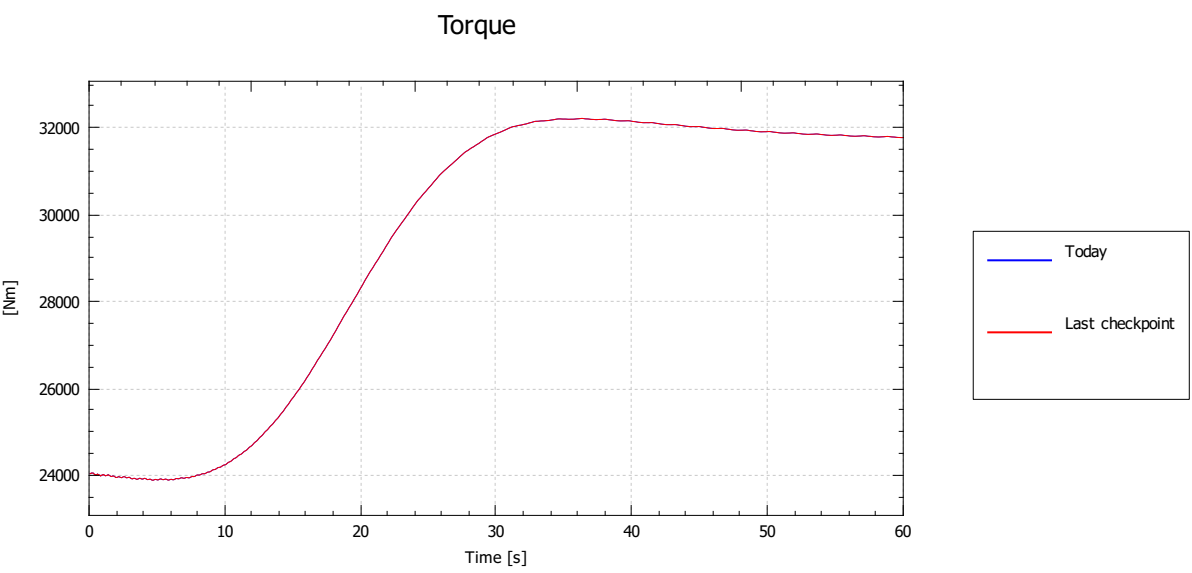
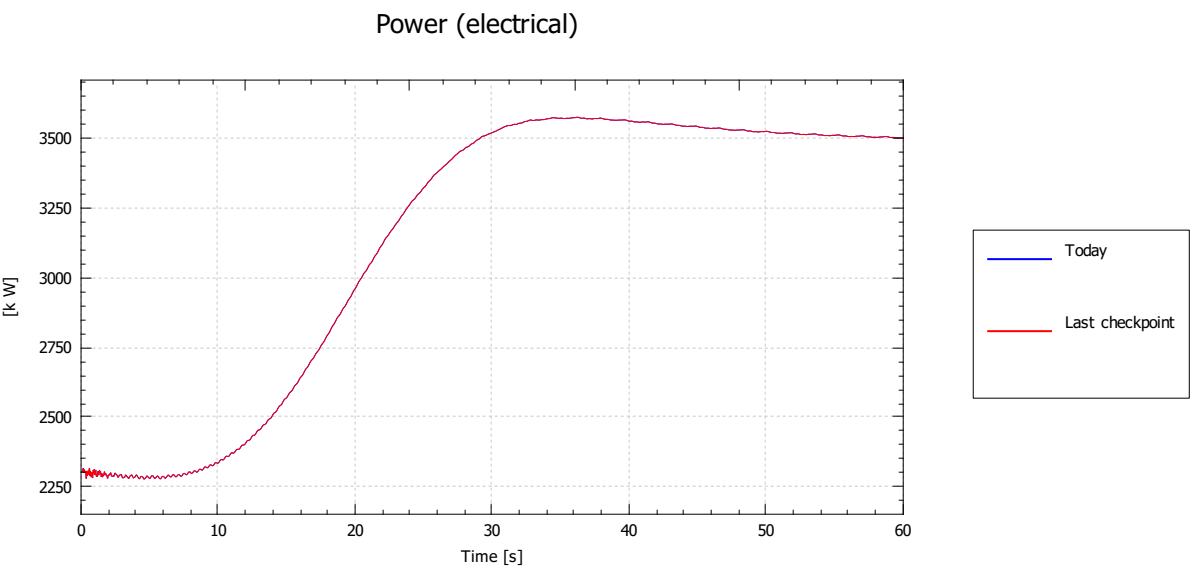
Yaw error



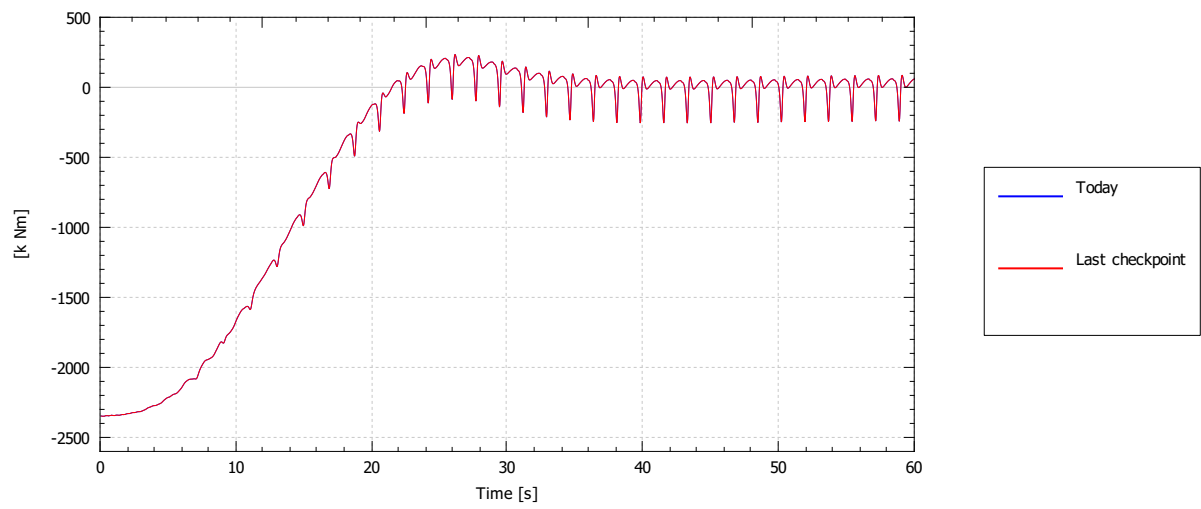
Torque about yaw axis



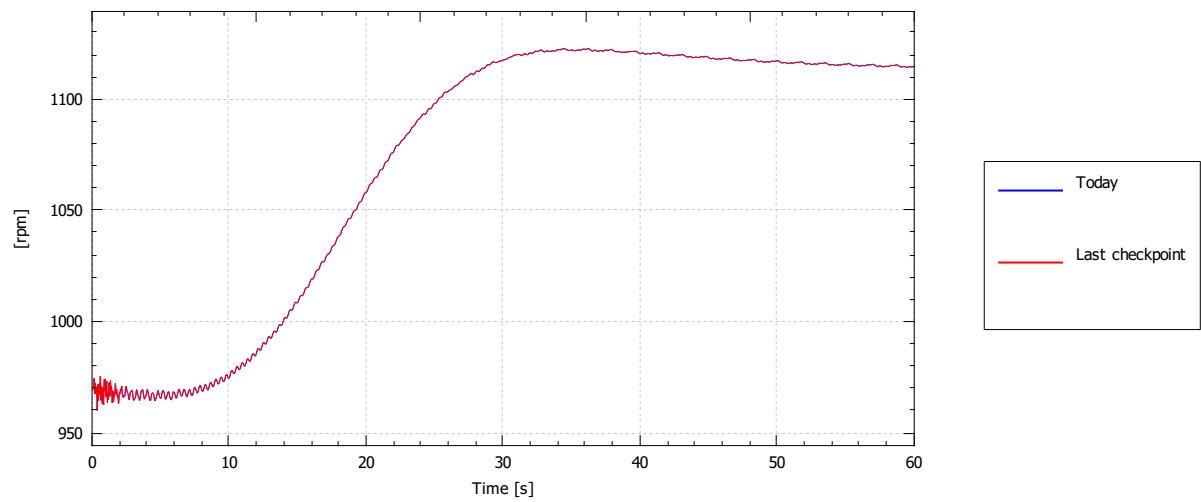
Generator



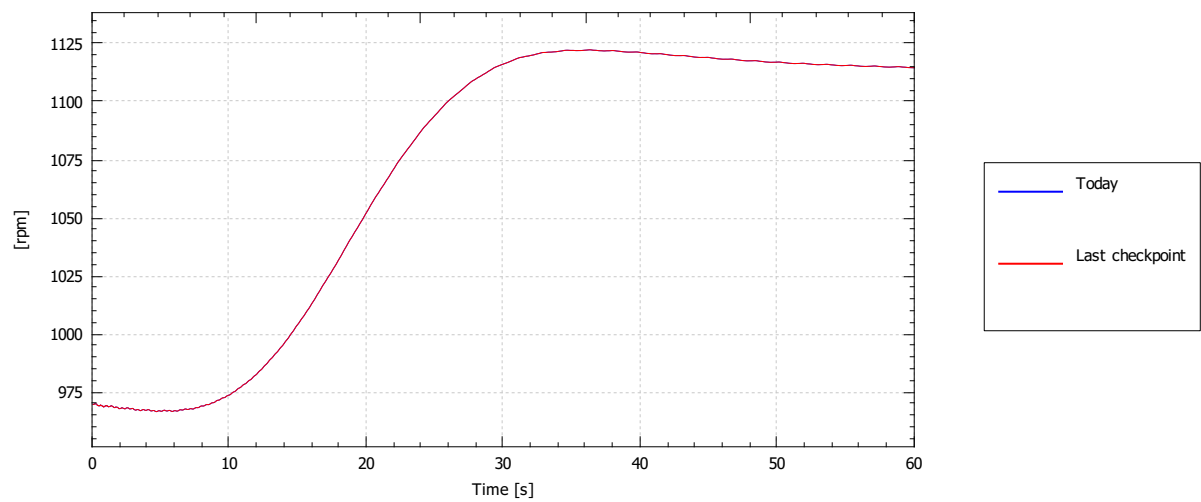
Torque diff. on main shaft



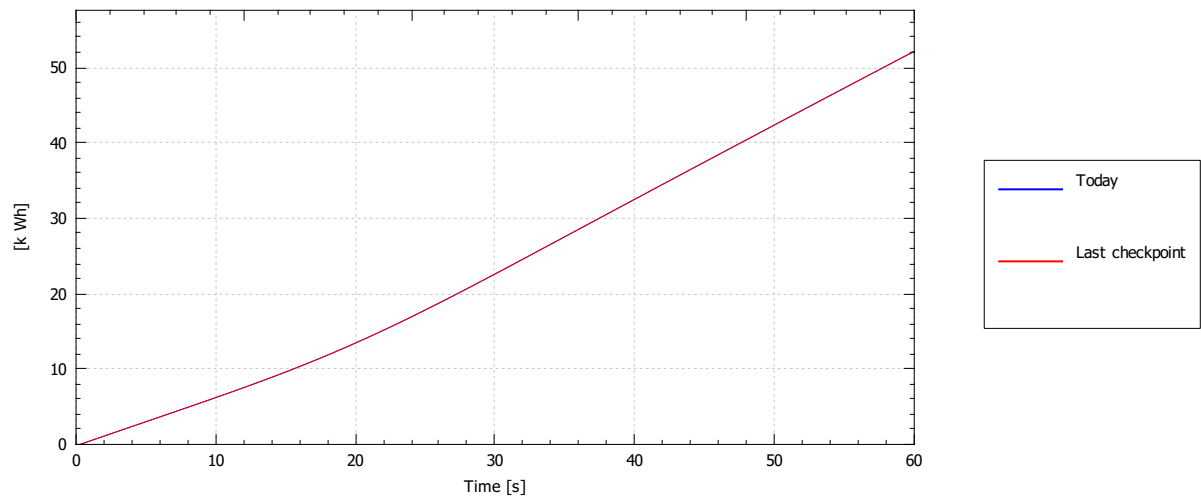
RPM



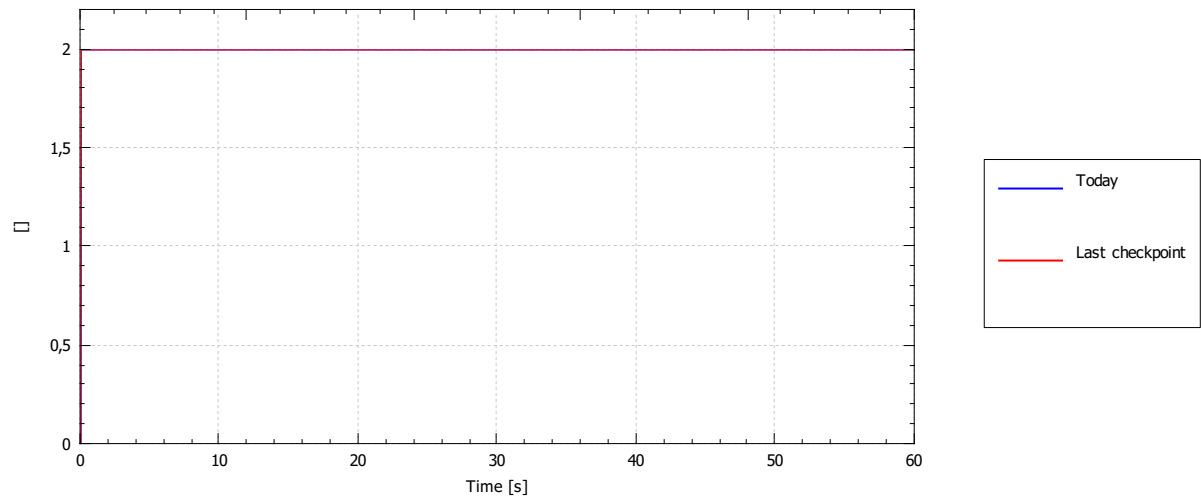
Filtered RPM



### Electricity production



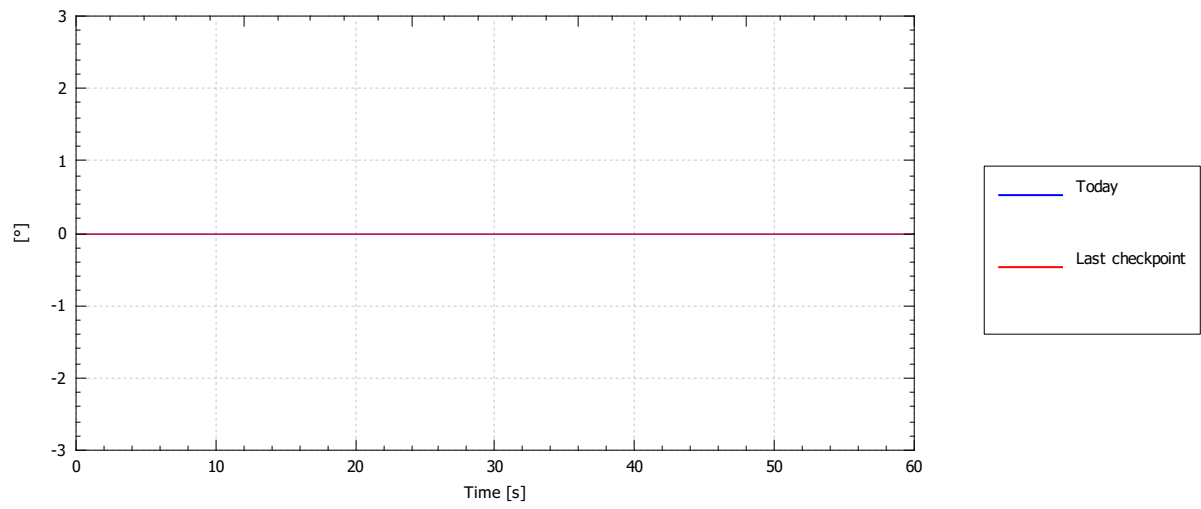
### Region



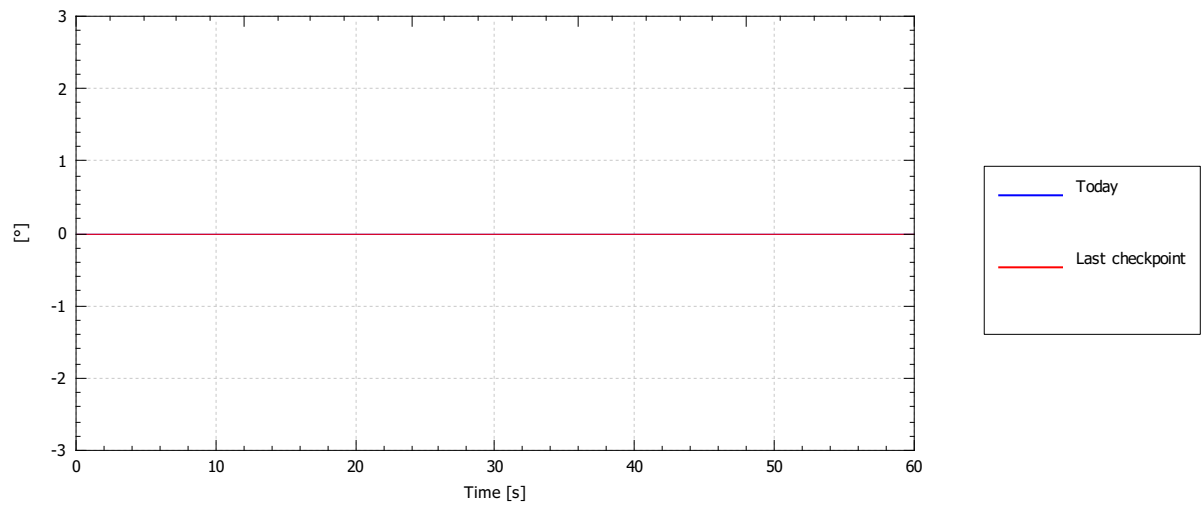
### Demanded pitch controller



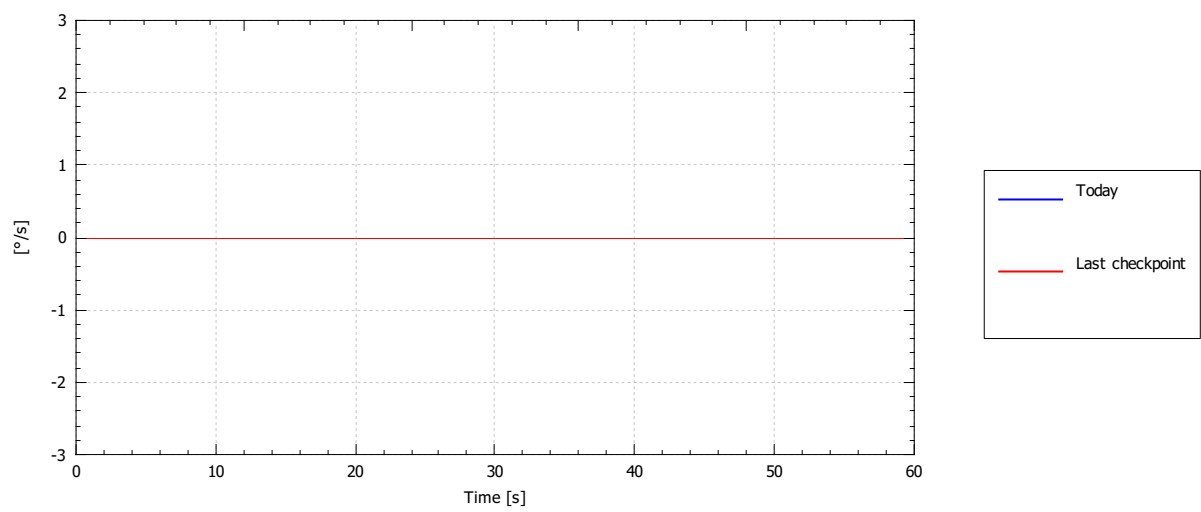
Demanded collective pitch angle



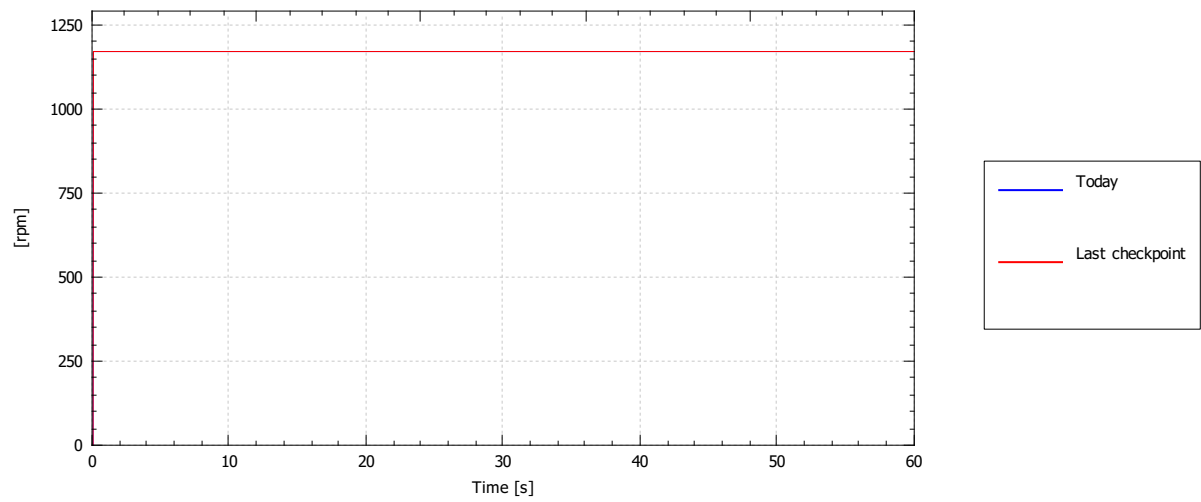
Cumulative demanded collective pitch angle



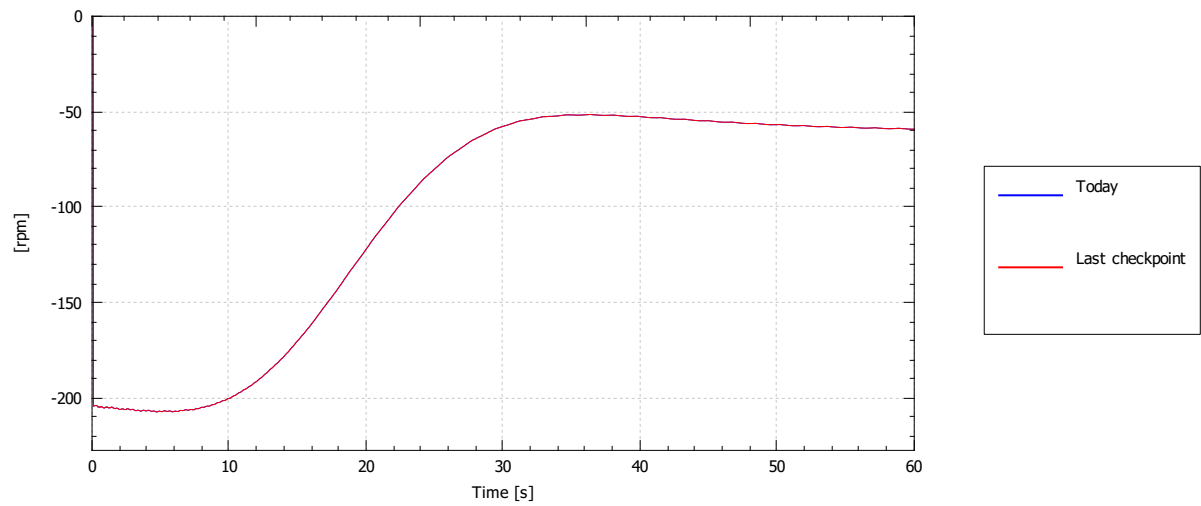
Demanded collective pitch angle rate



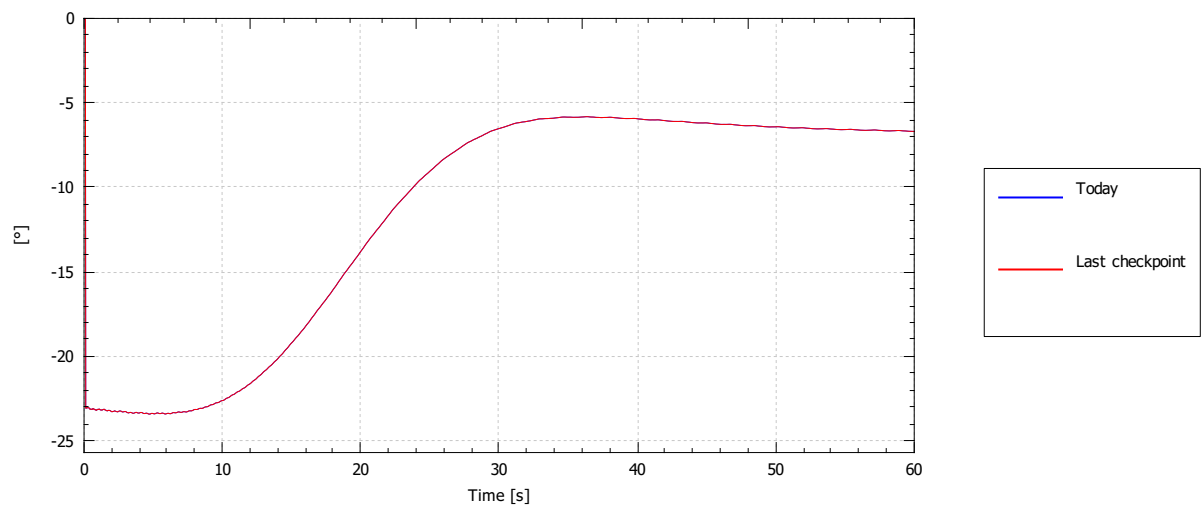
Set point



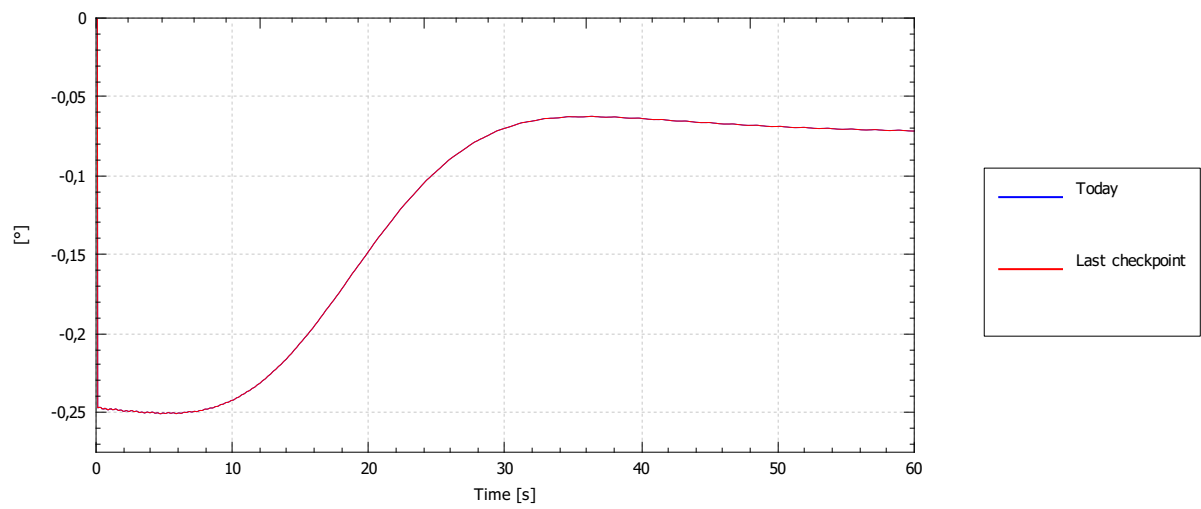
RPM error



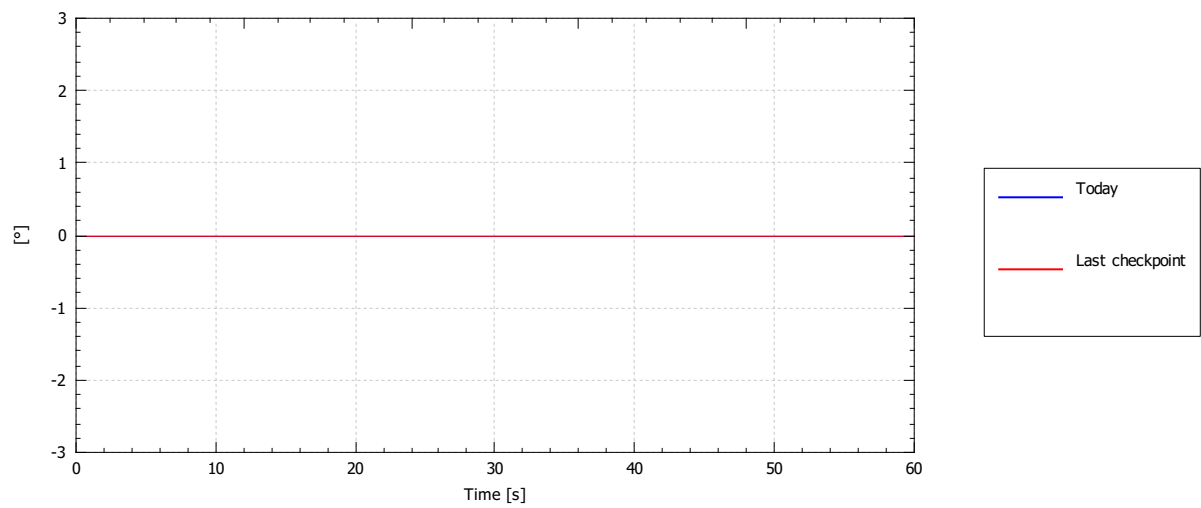
P term



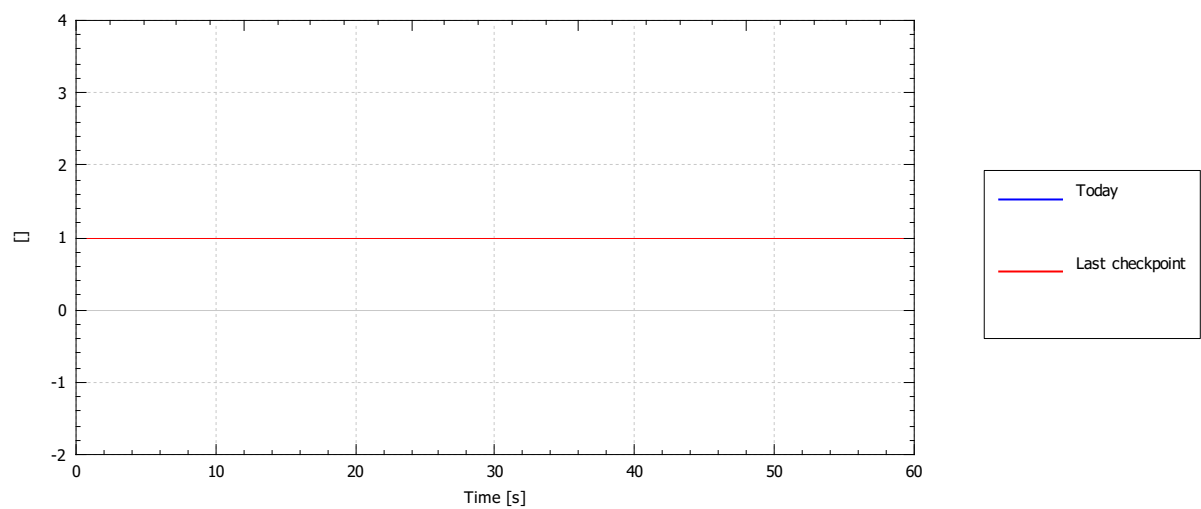
I term

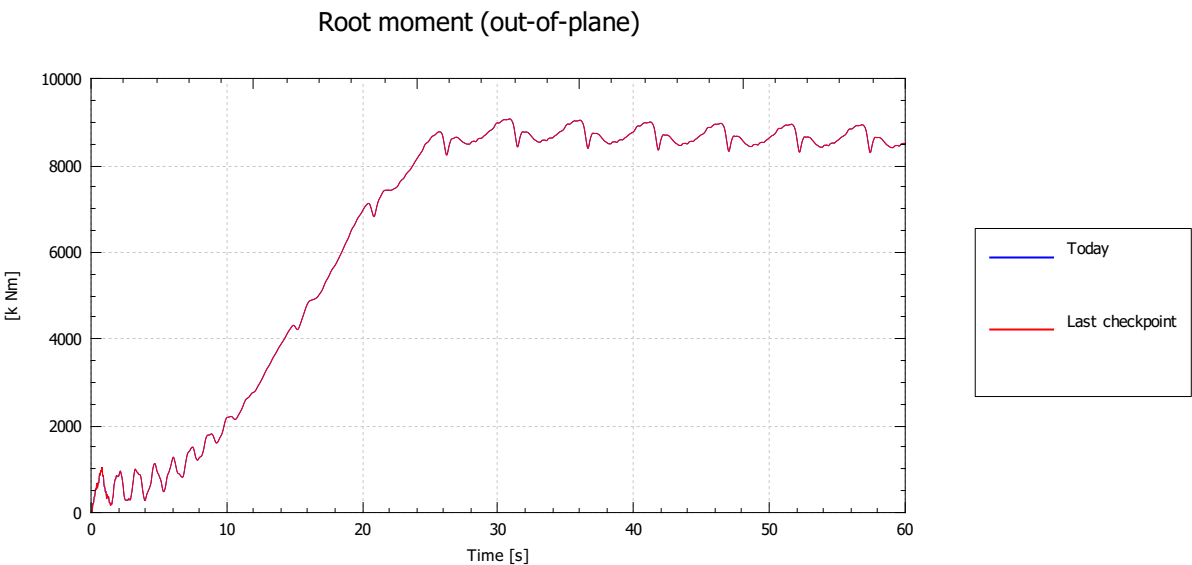
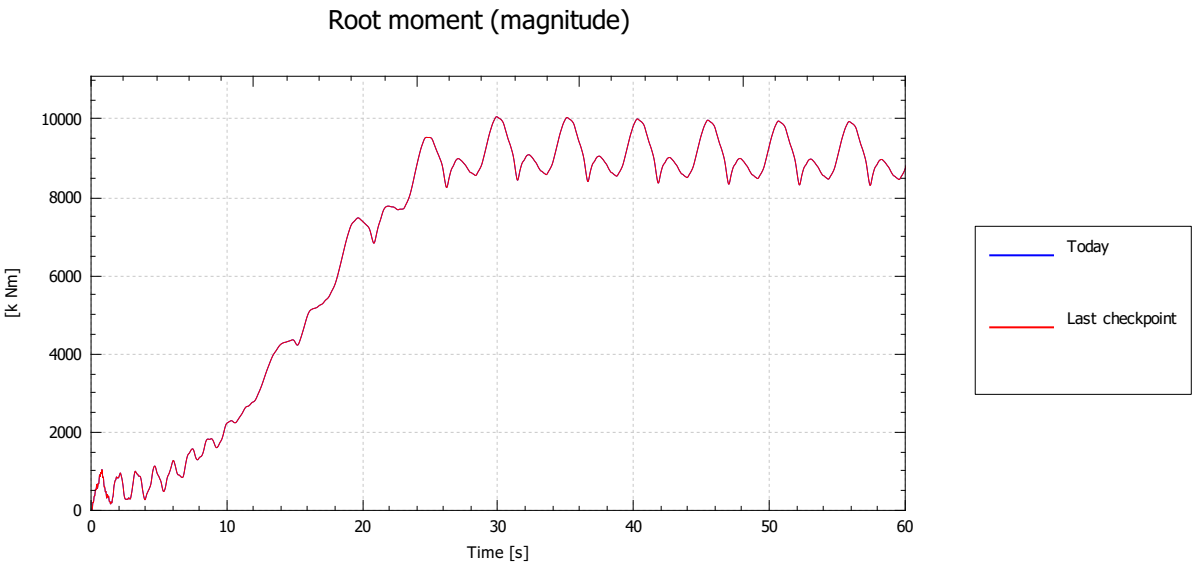
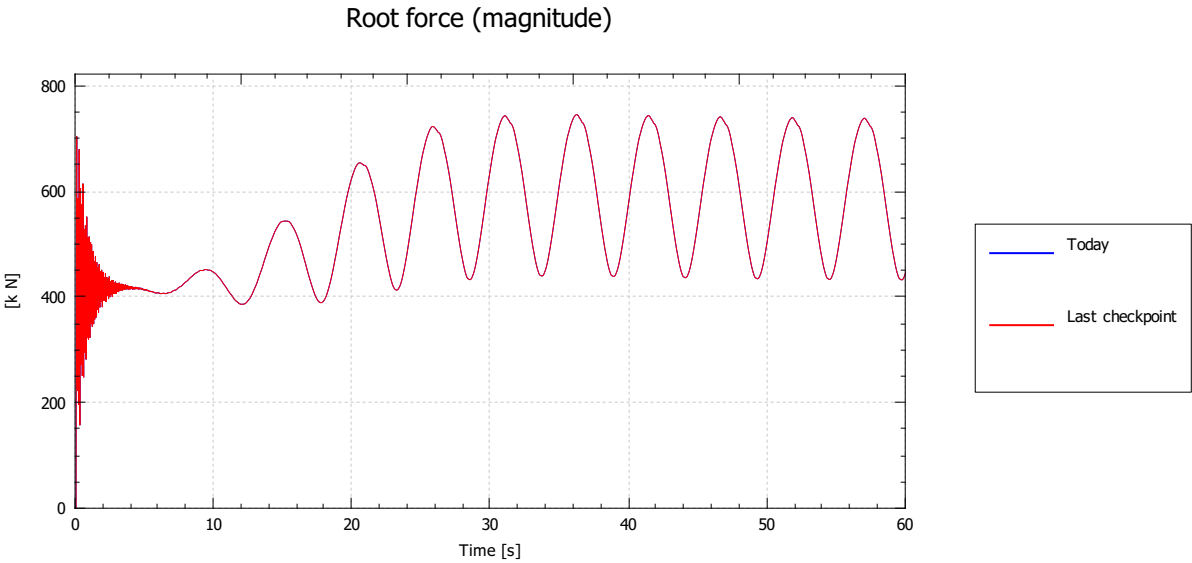


D term

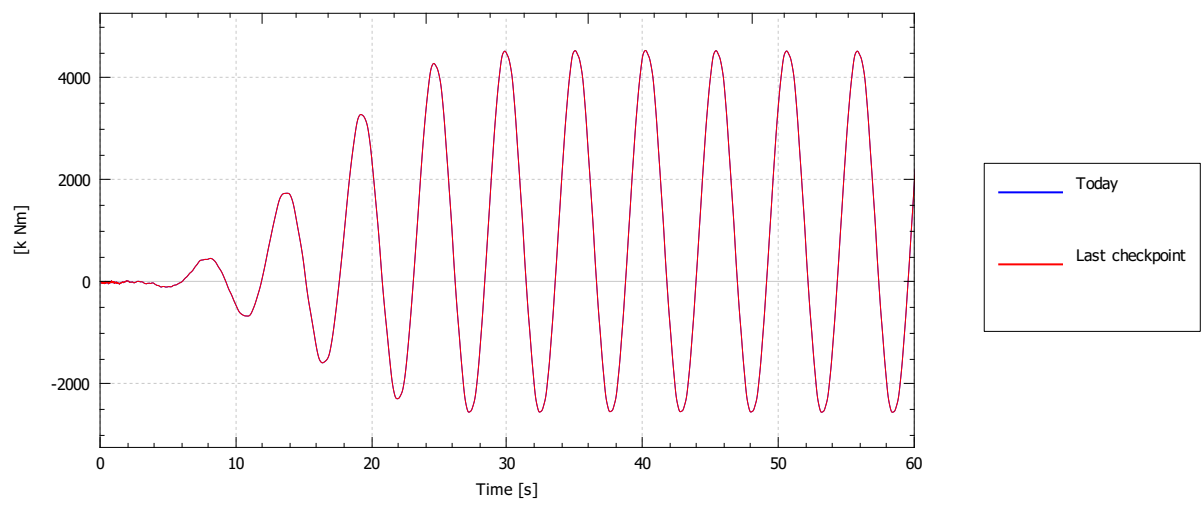


Gain scheduling factor

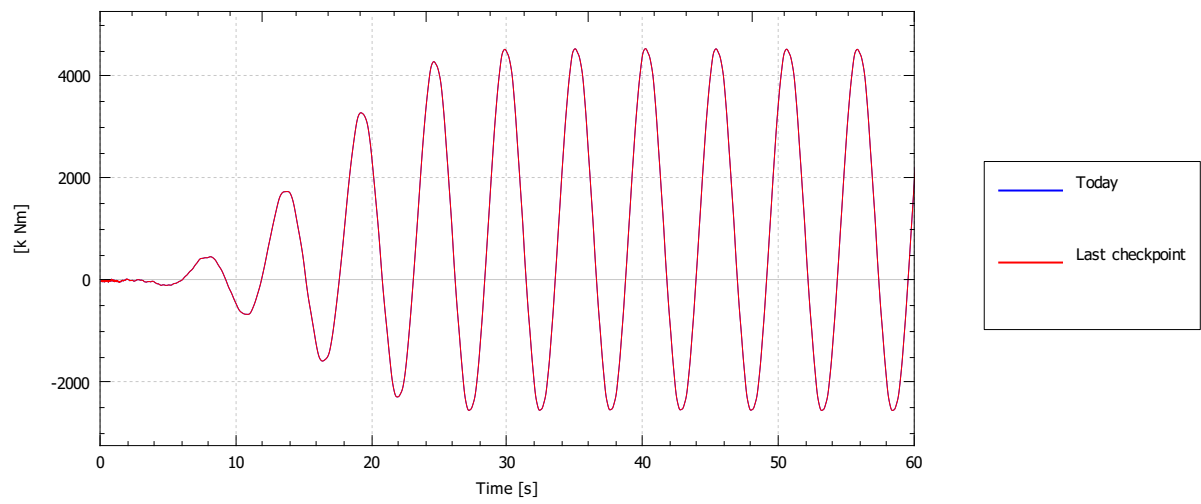




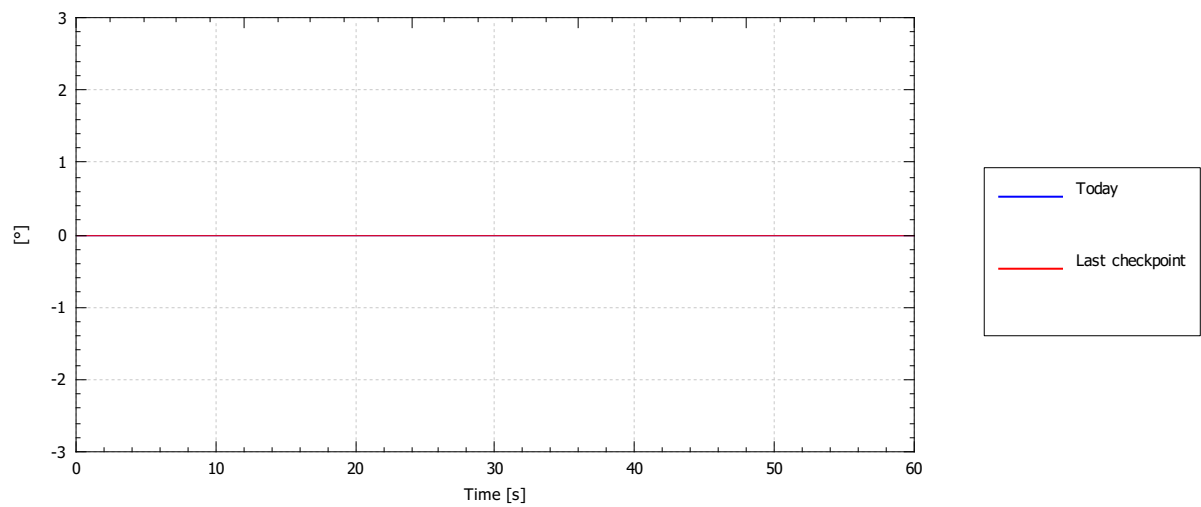
Root moment (in-plane)



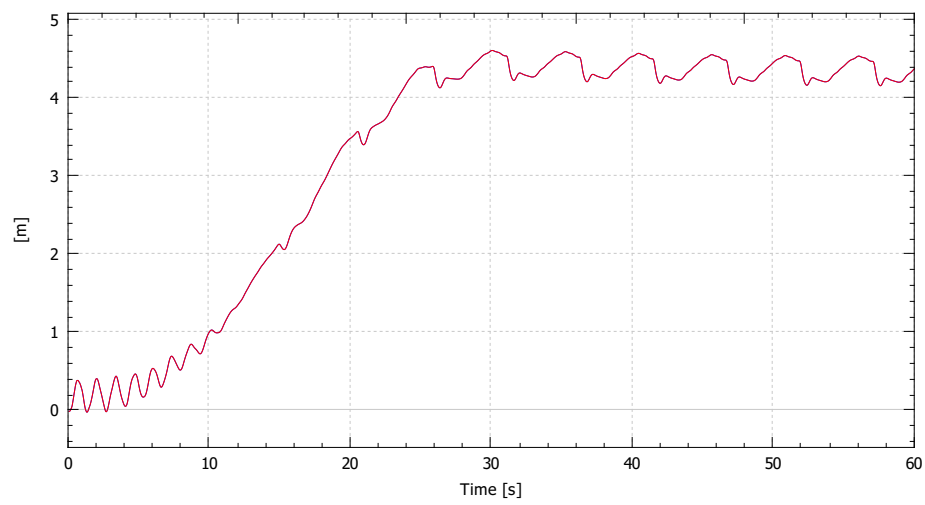
Root moment about shaft



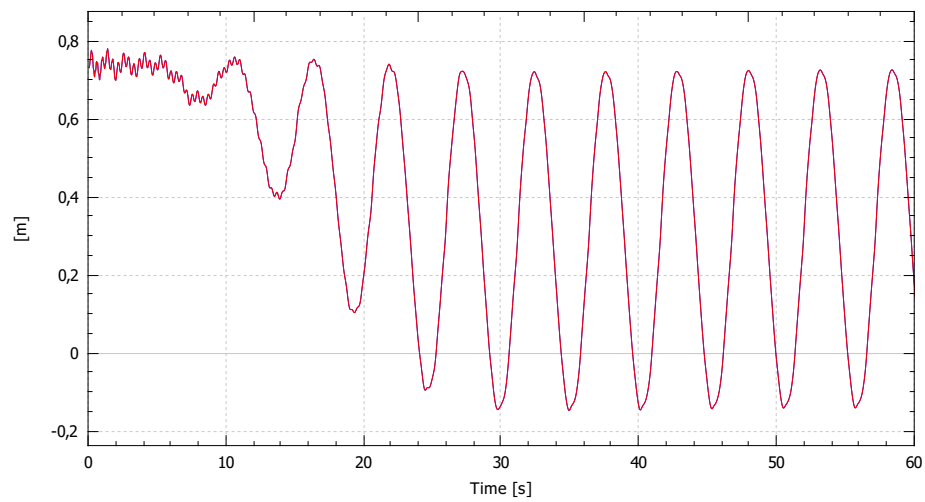
Pitch angle



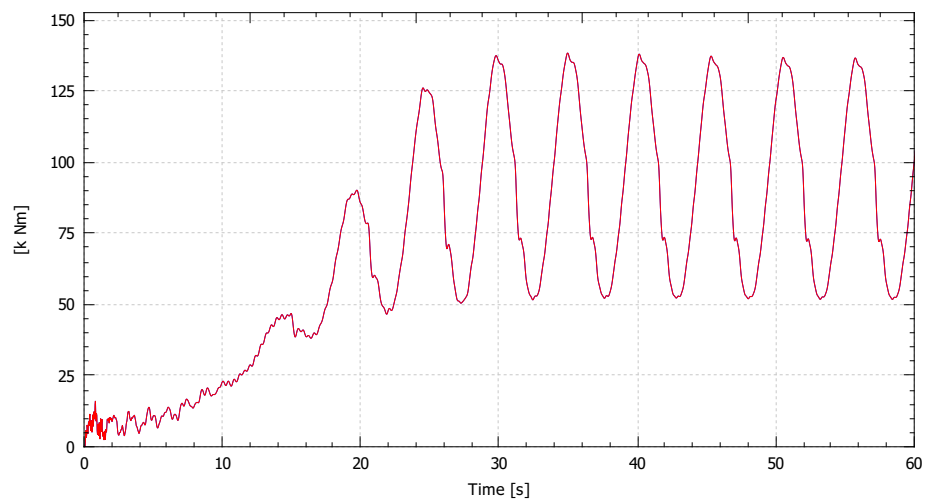
Tip deflection (out-of-plane)

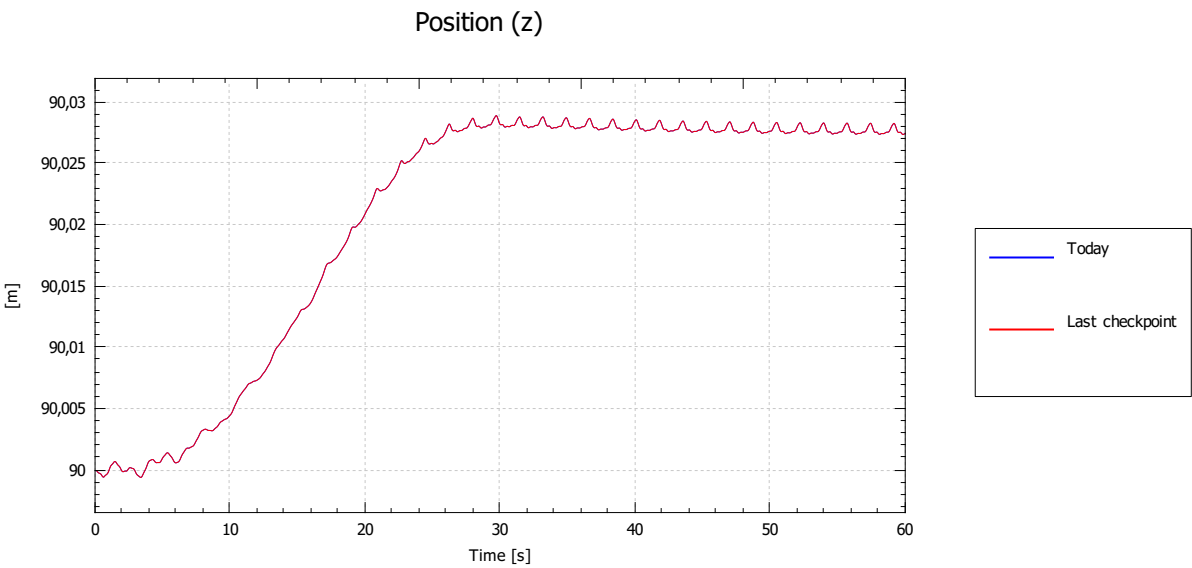
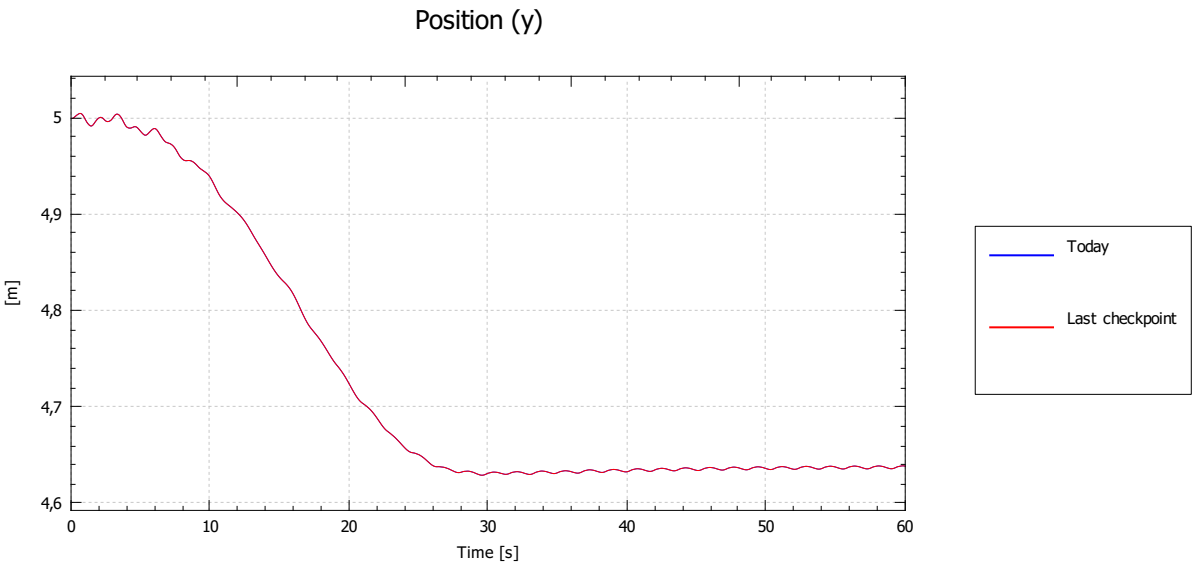
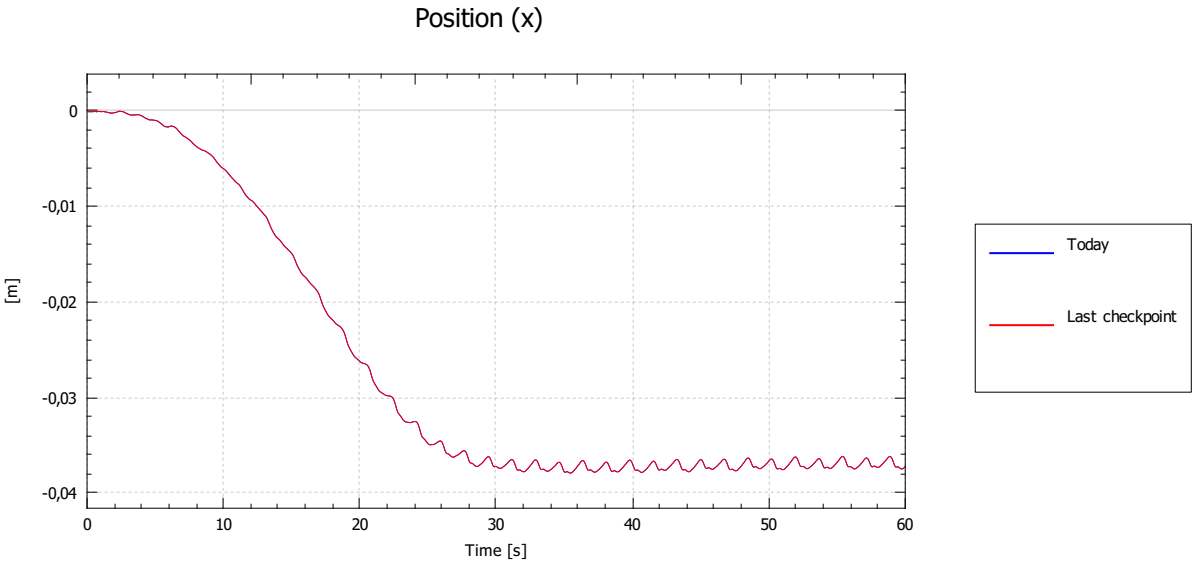


Tip deflection (in-plane)

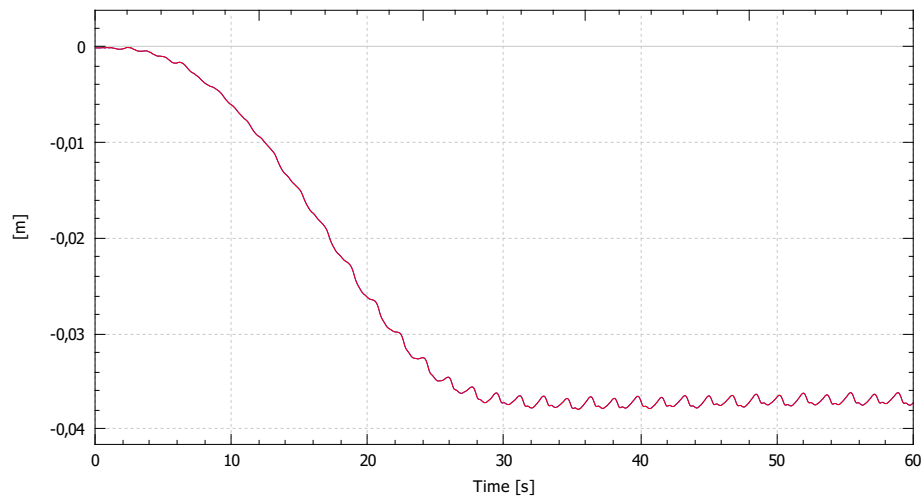


Root torque

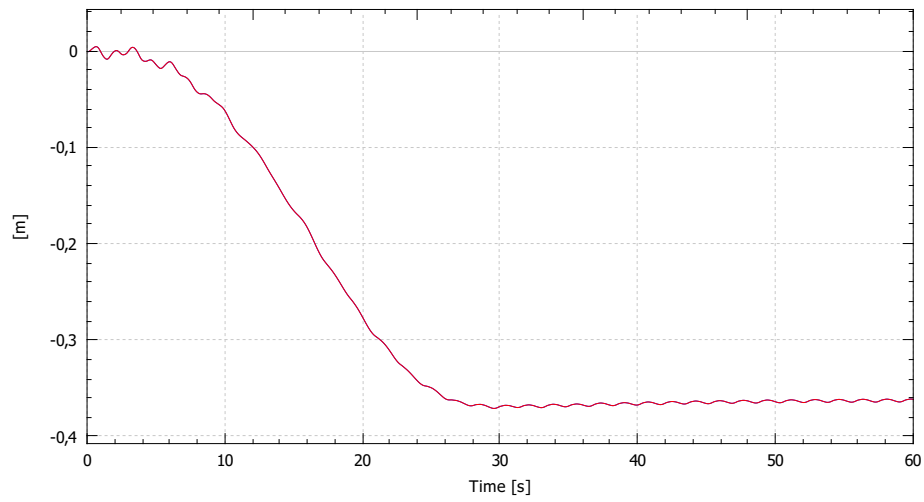




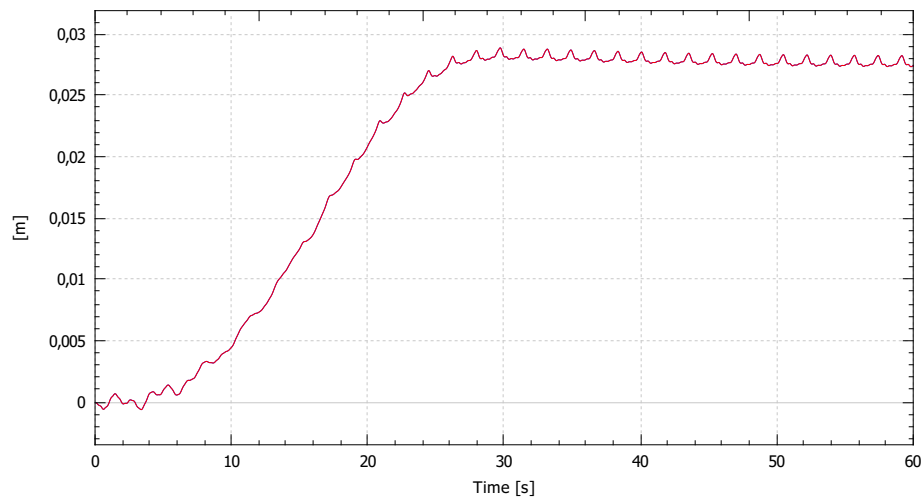
Displacement (u)



Displacement (v)

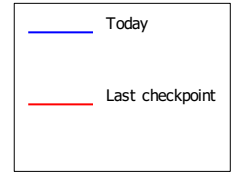
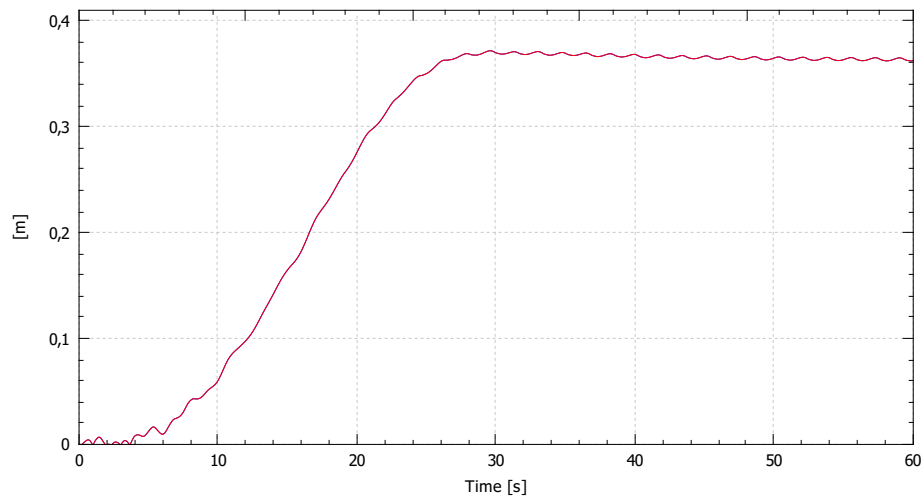


Displacement (w)

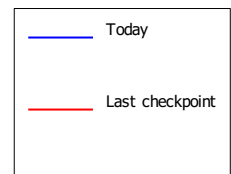
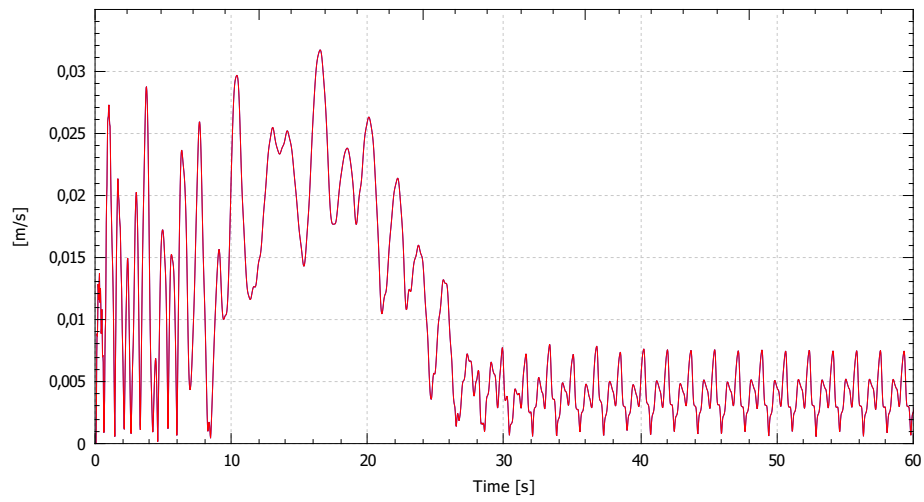




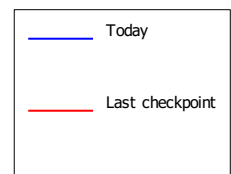
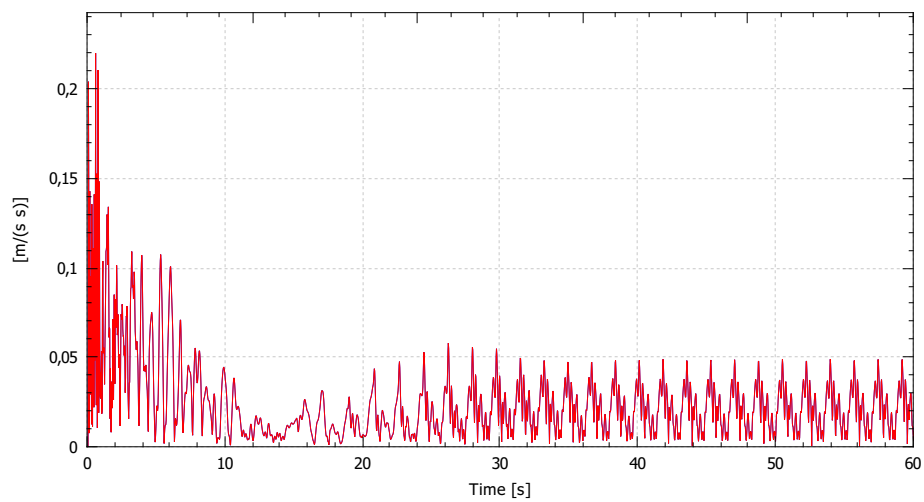
Displacement magnitude



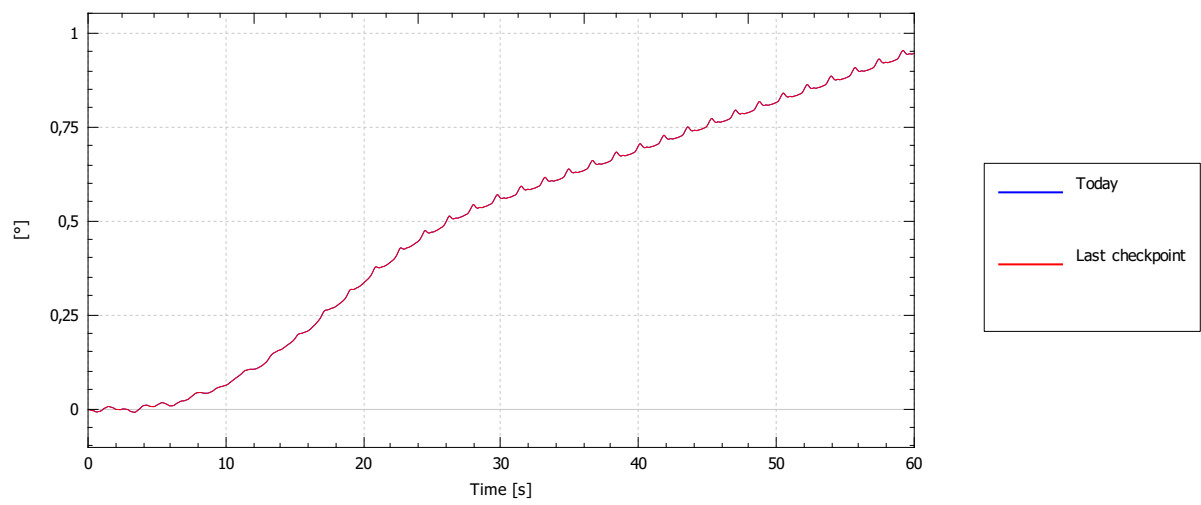
Speed



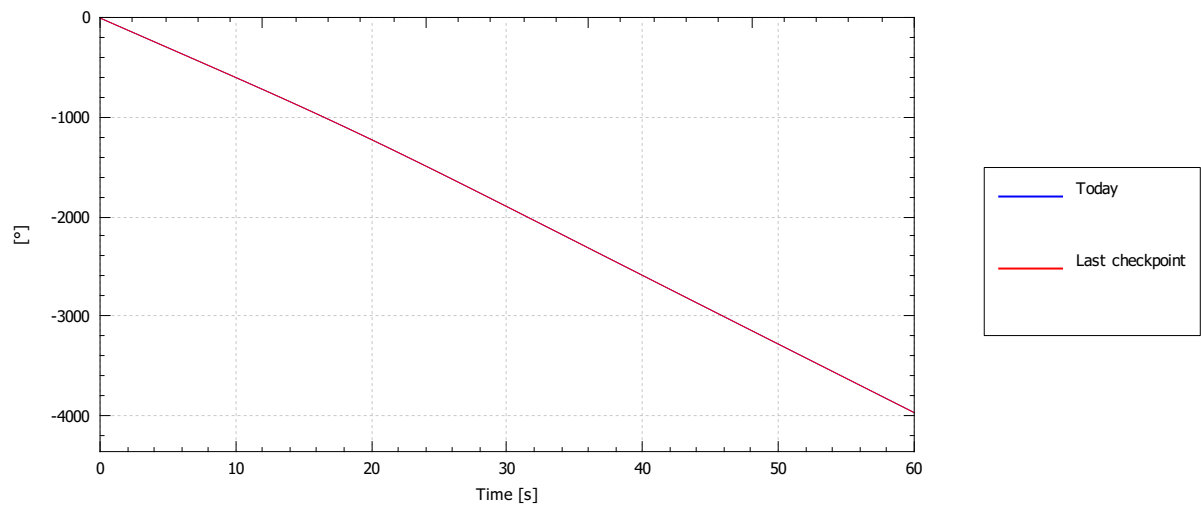
Acceleration, magnitude



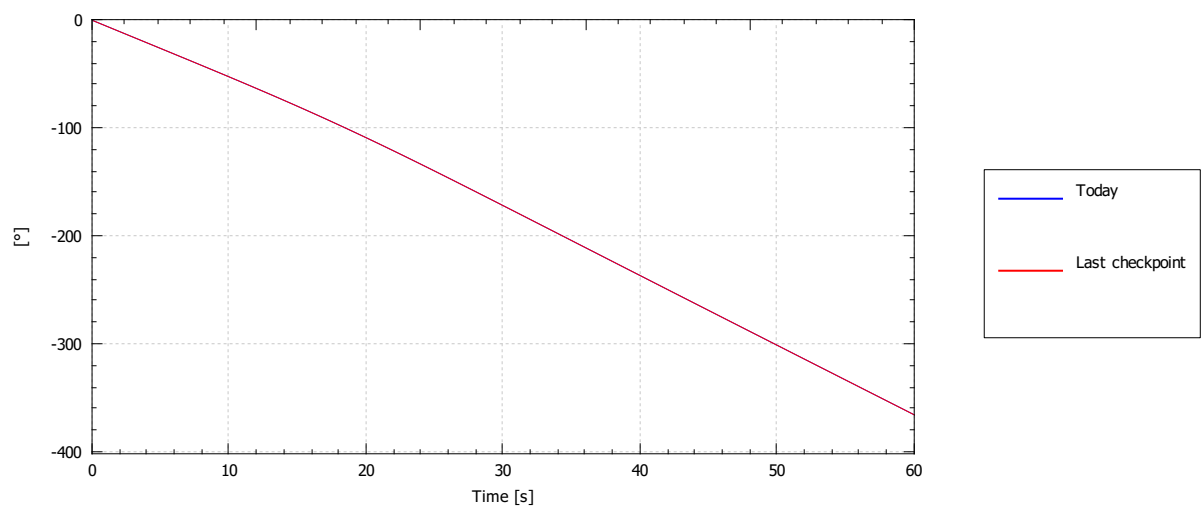
Rotational displacement (ru)



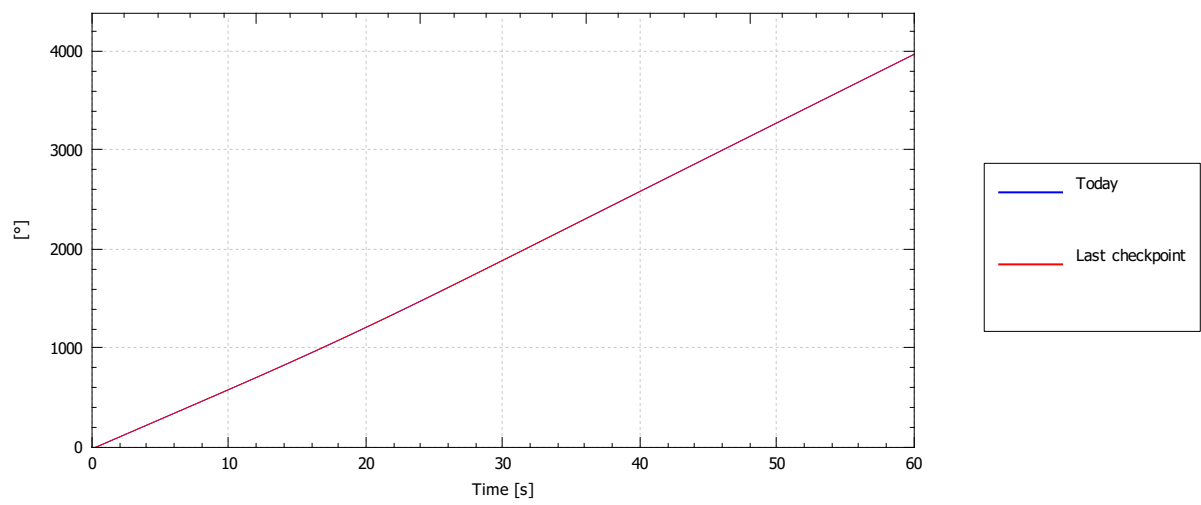
Rotational displacement (rv)



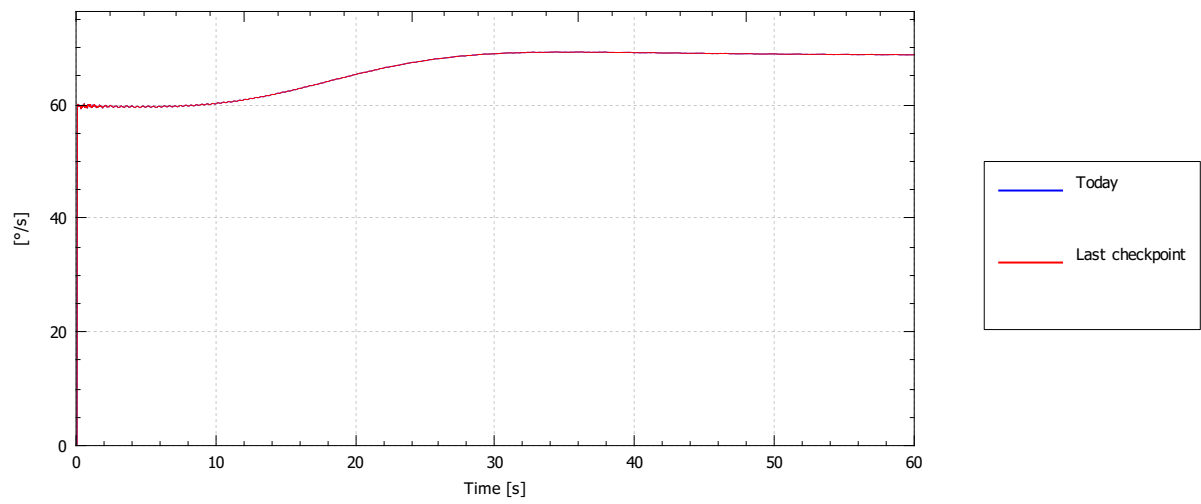
Rotational displacement (rw)



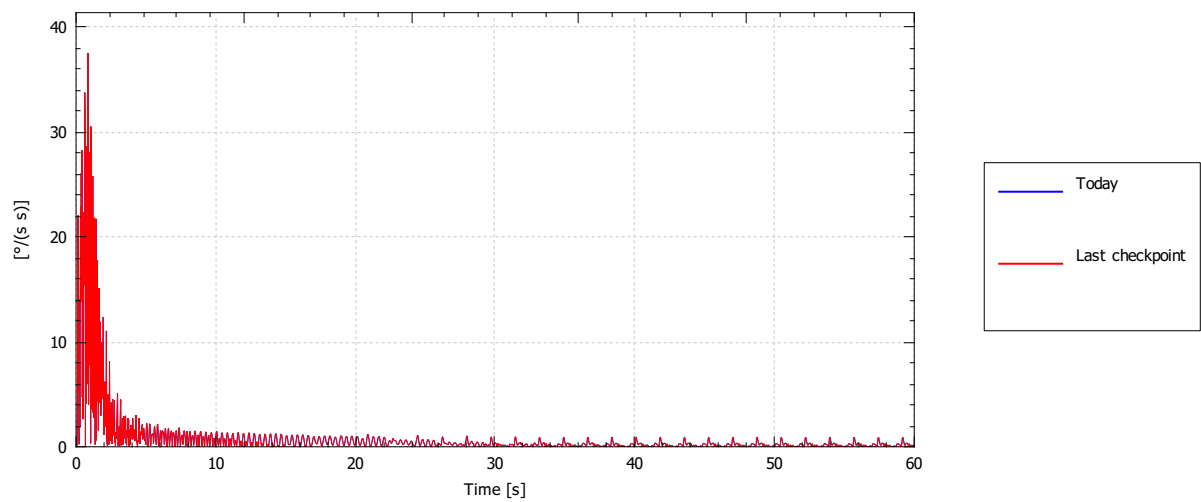
Rotational displacement magnitude



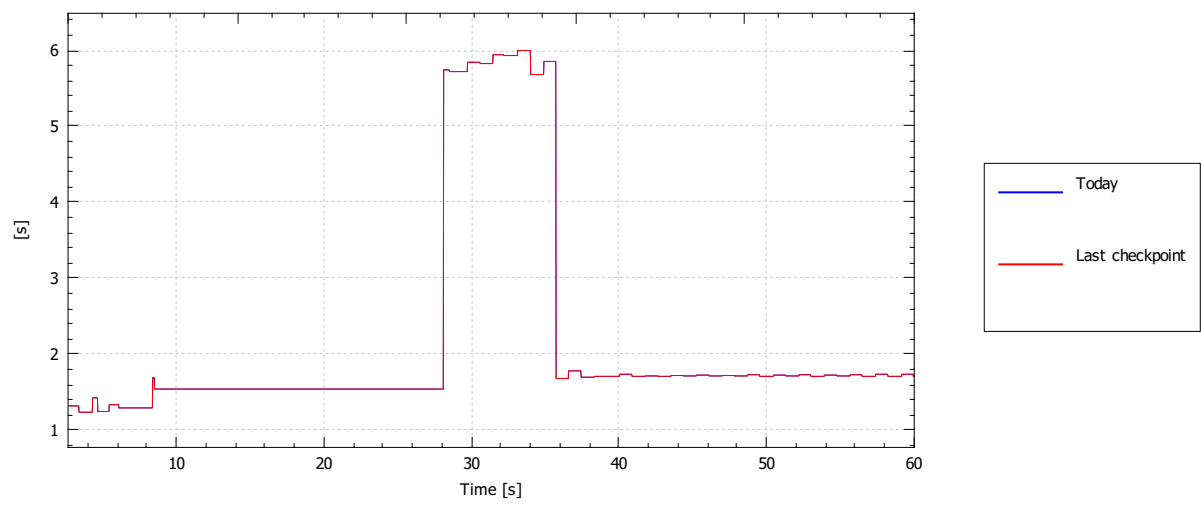
Rotational speed



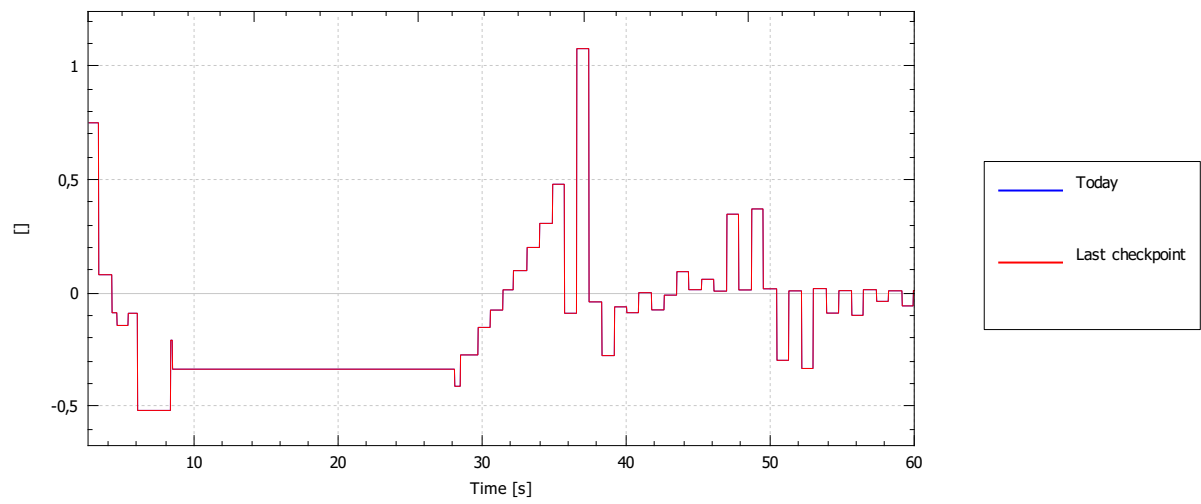
Rotational acceleration mag



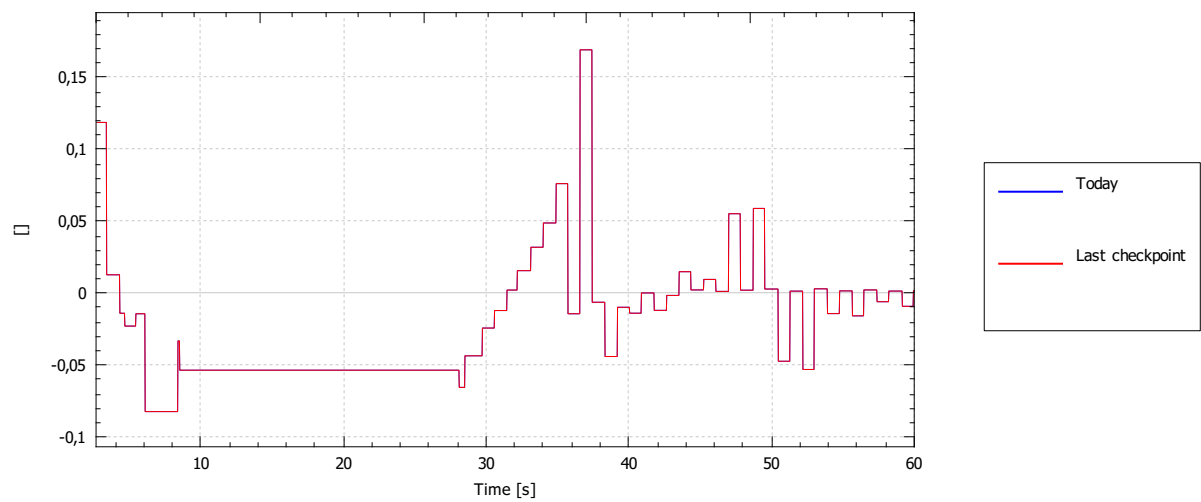
Displacement period



Displacement logarithmic decrement

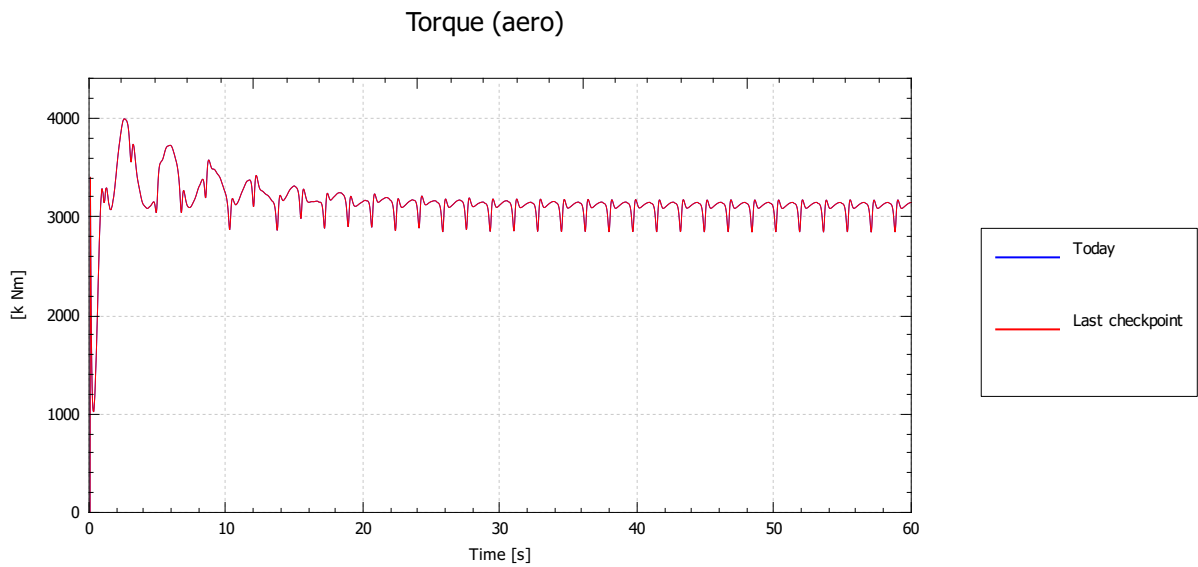
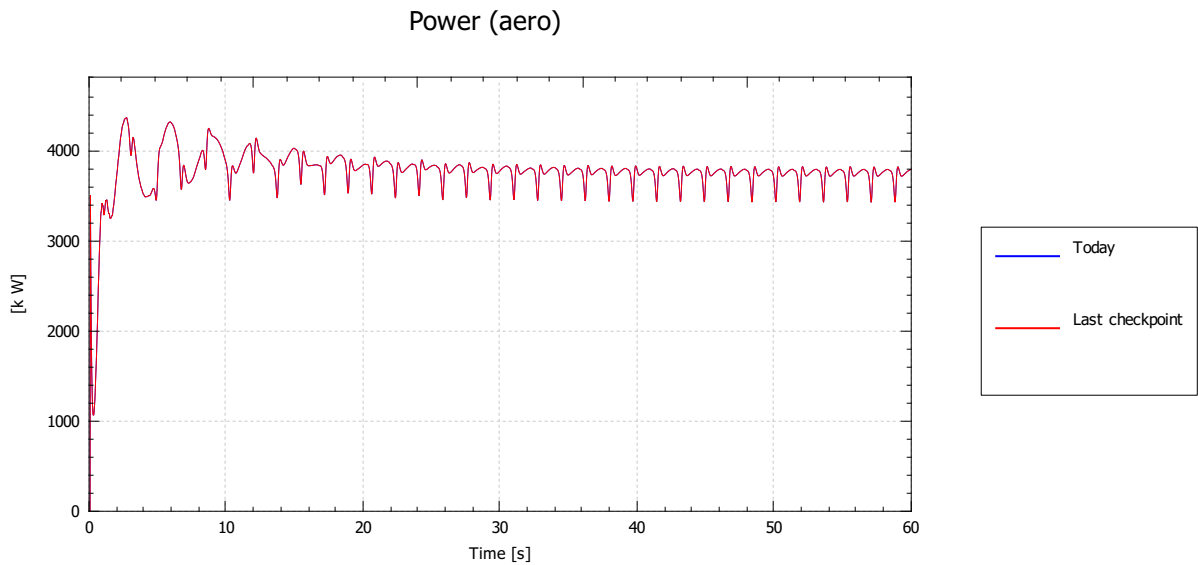


Displacement damping ratio

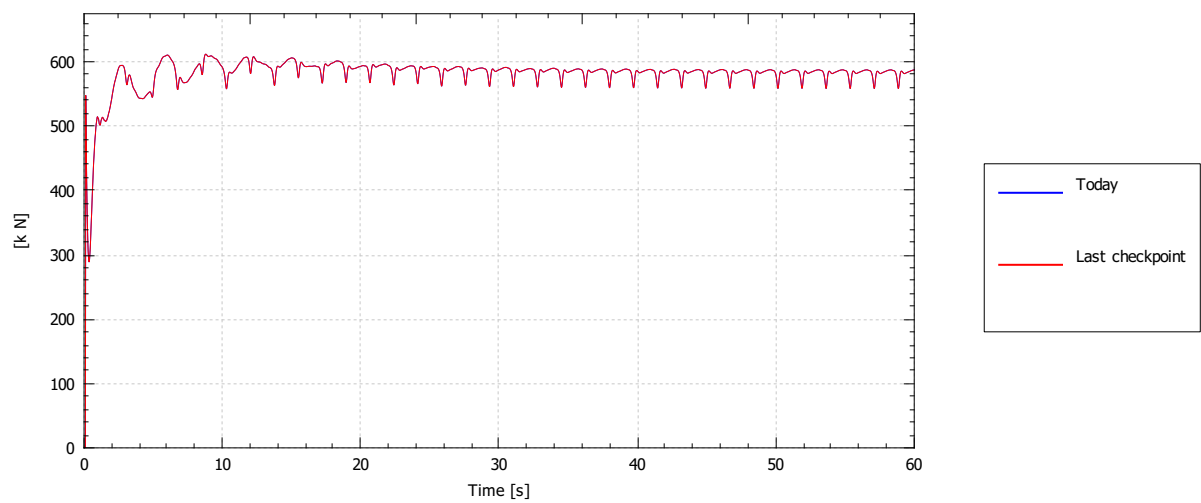


Load case: None

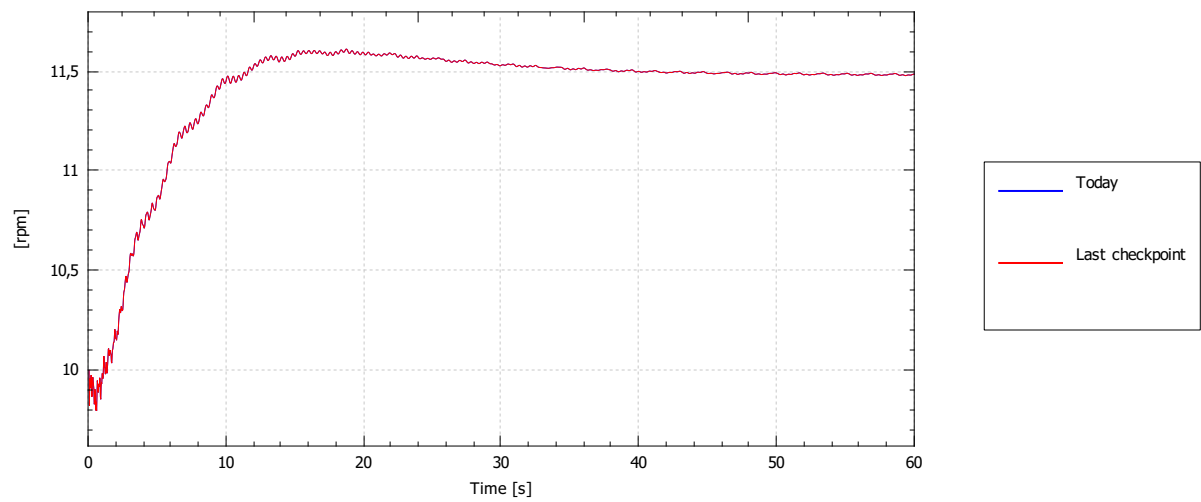
Rotor



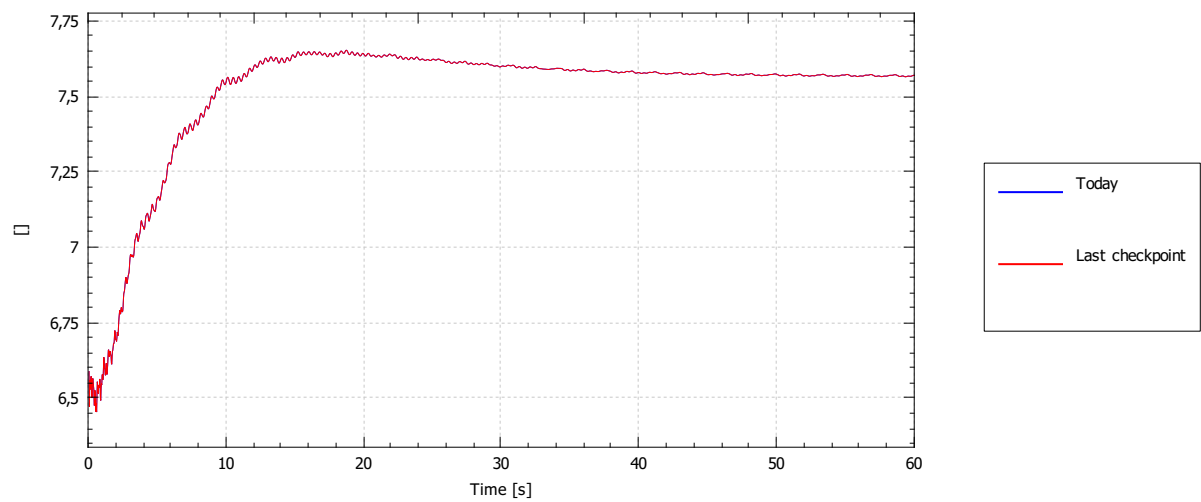
Thrust (aero)



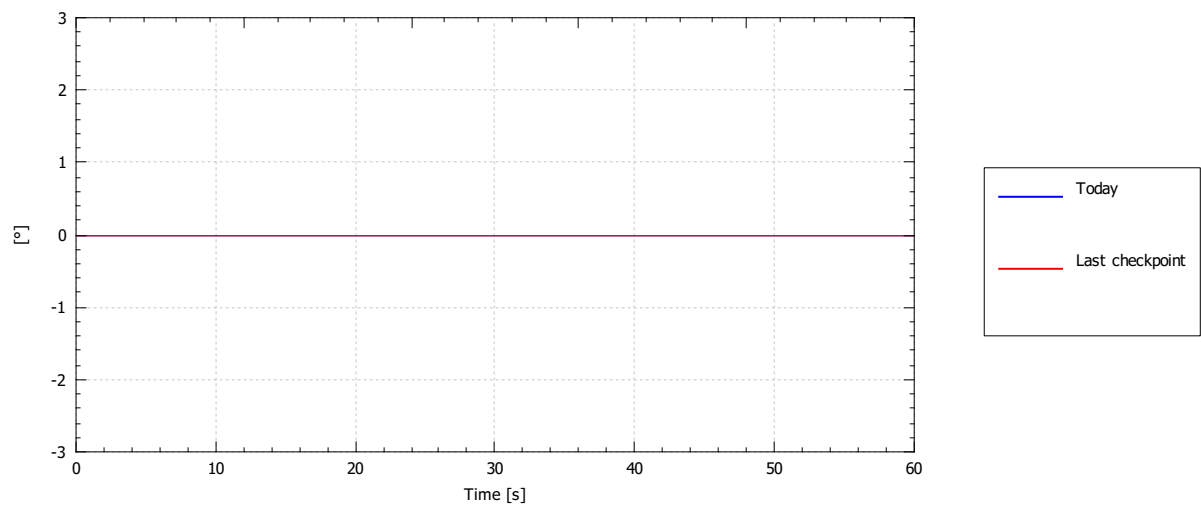
RPM



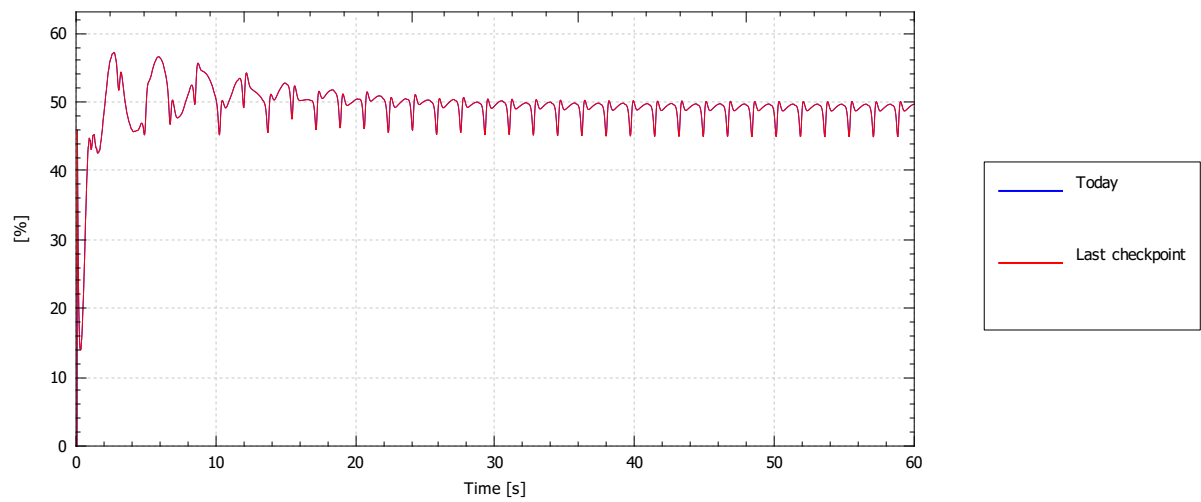
TSR



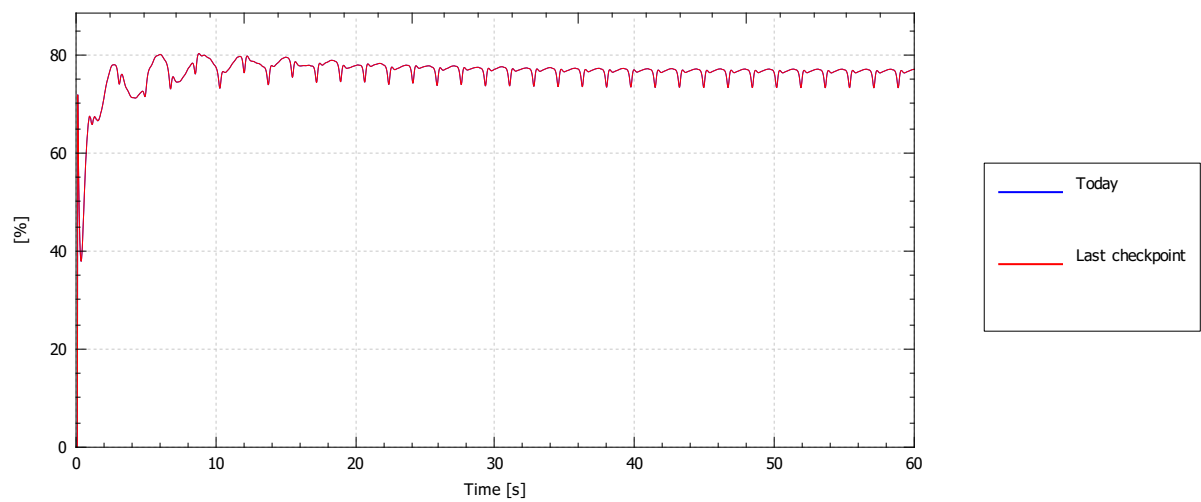
Representative demanded pitch angle



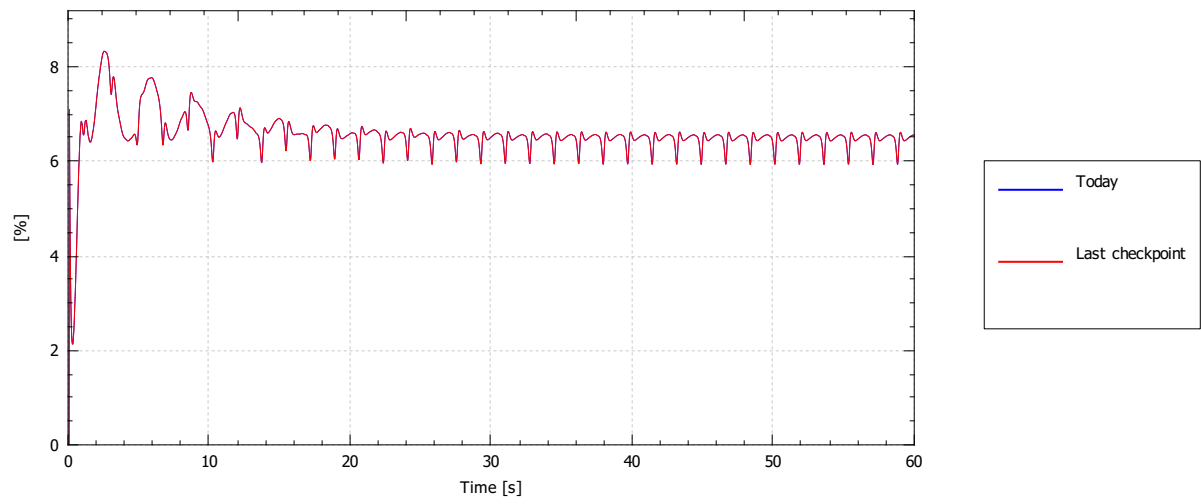
Power coef. (CP)



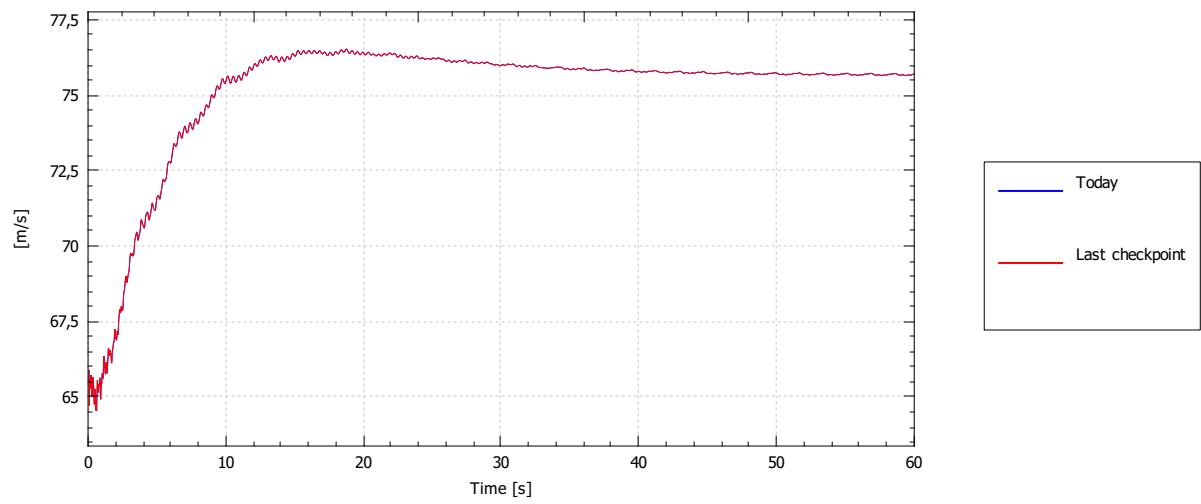
Thrust coef. (CT)



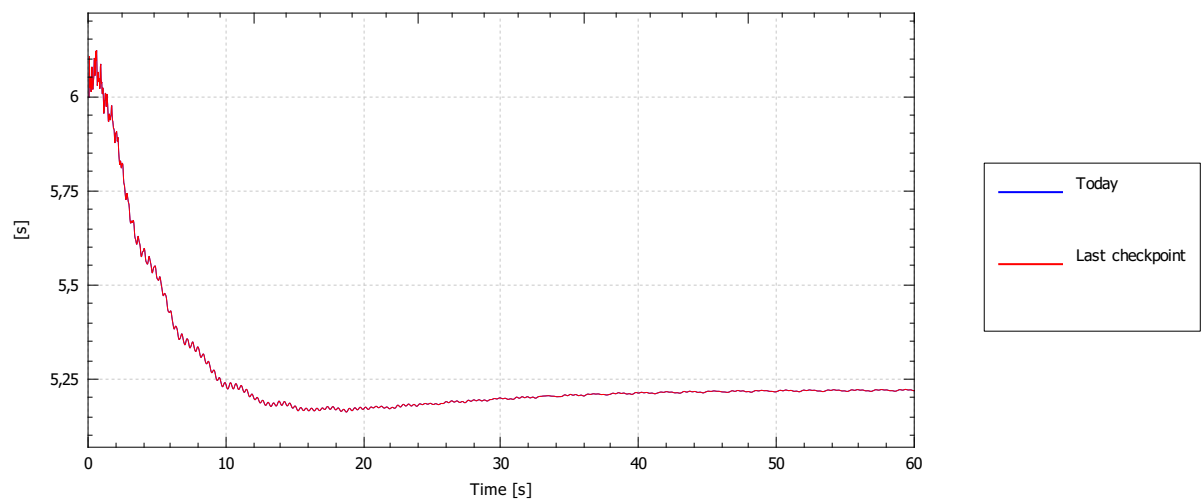
Torque coef. (CQ)



Tip speed

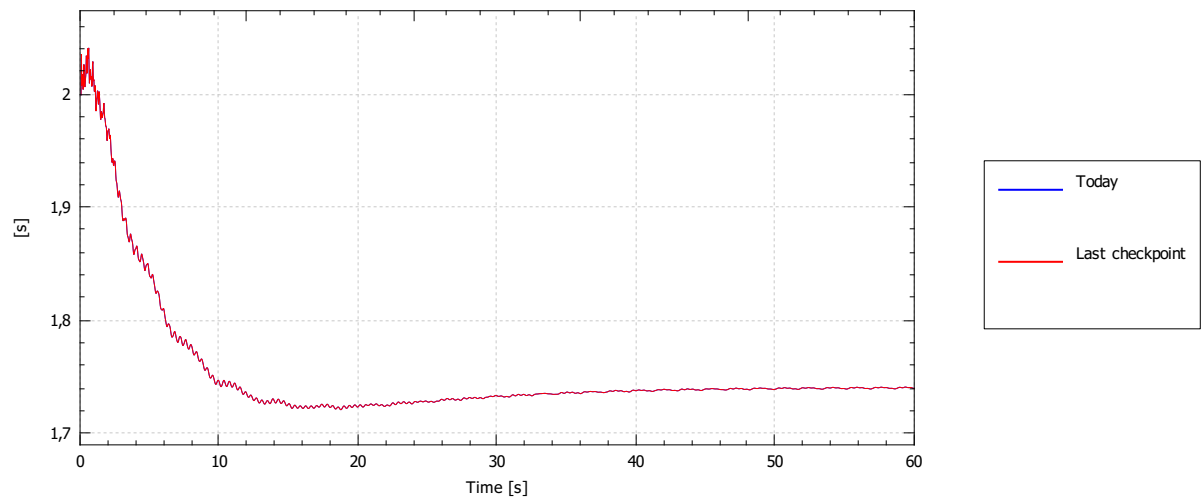


1P (one revolution)

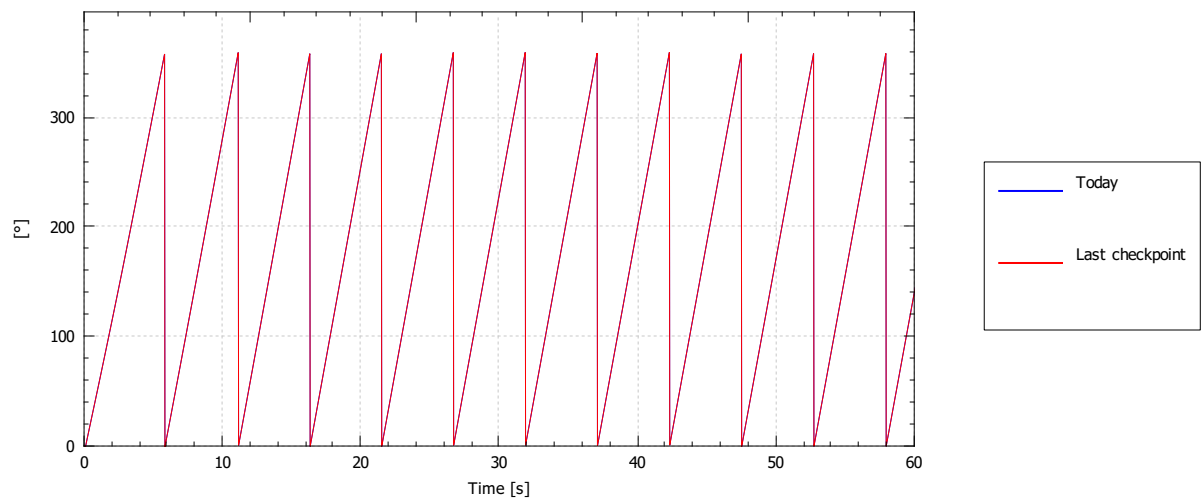




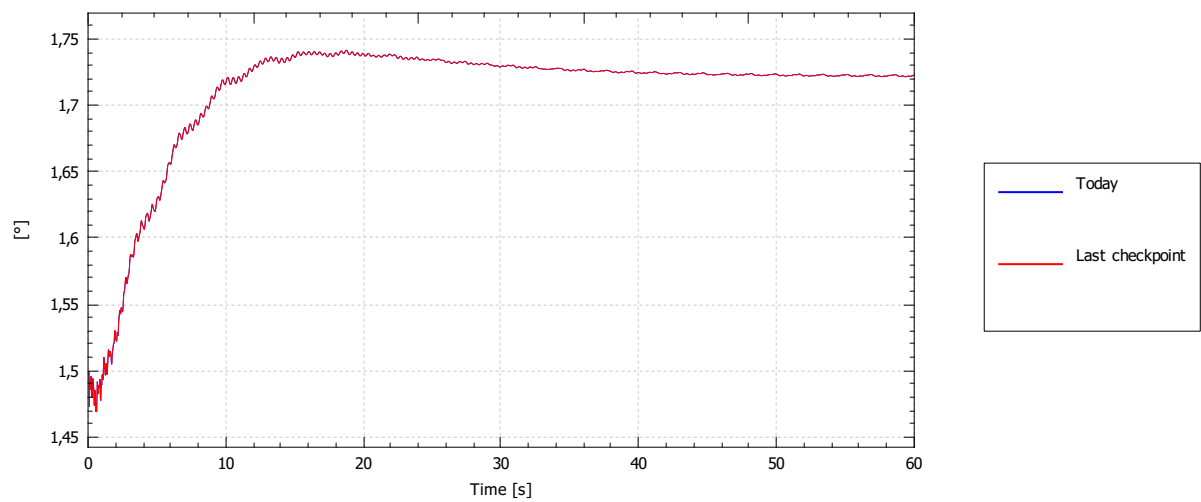
nP (blade passing)



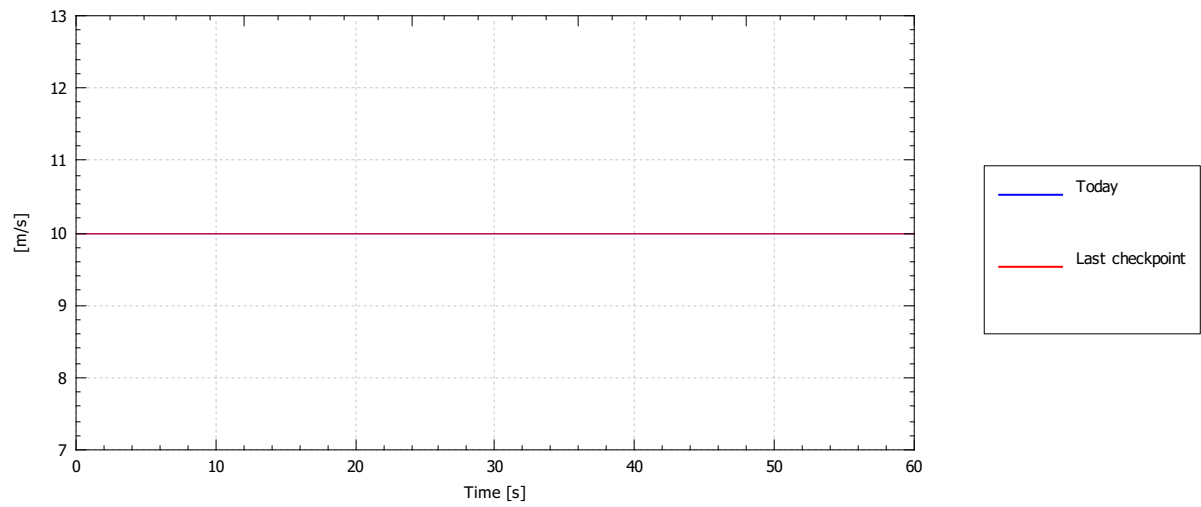
Azimuth angle



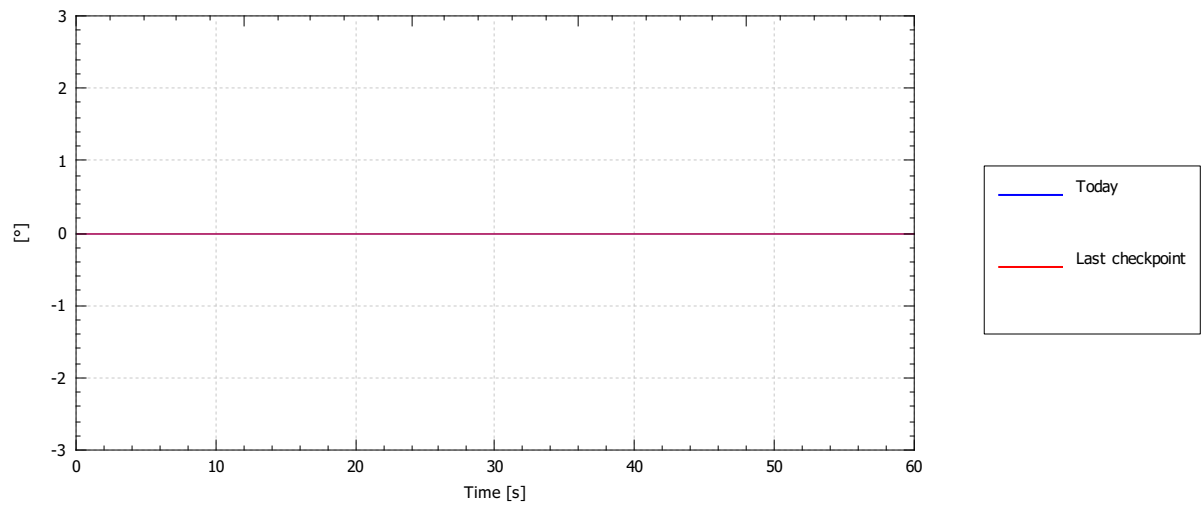
Rotation per timestep



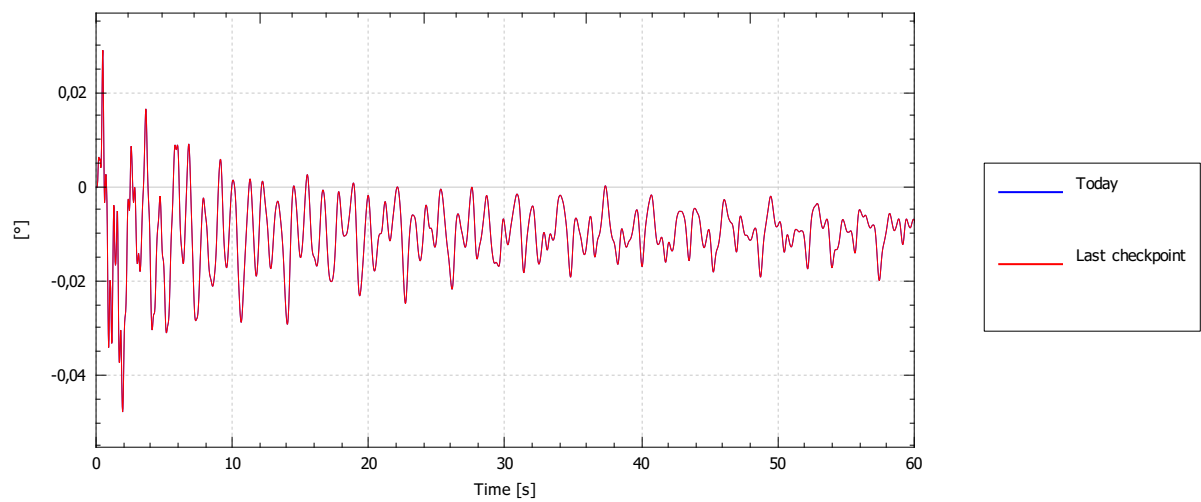
Wind speed at hub, magnitude



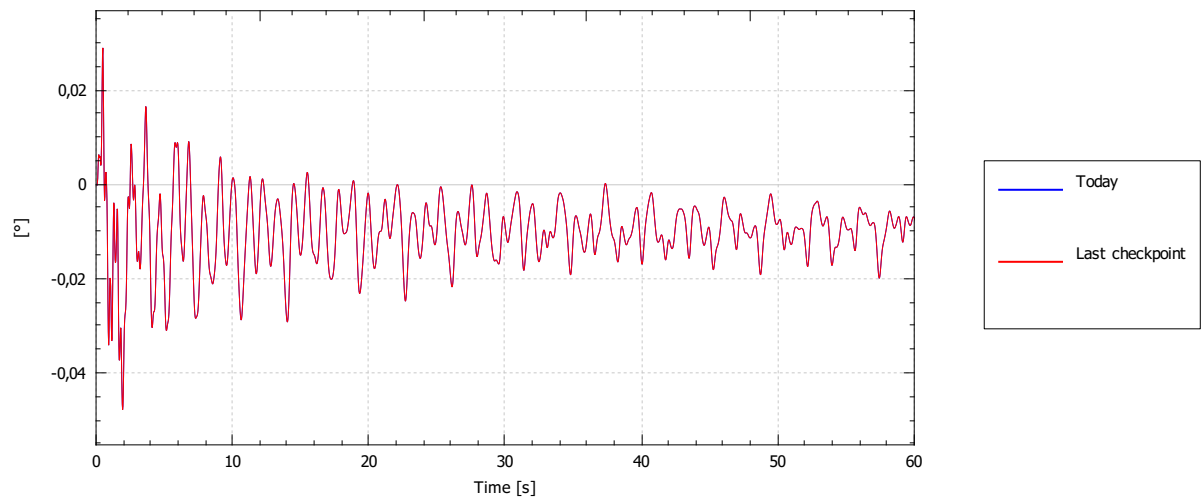
Wind angle at hub



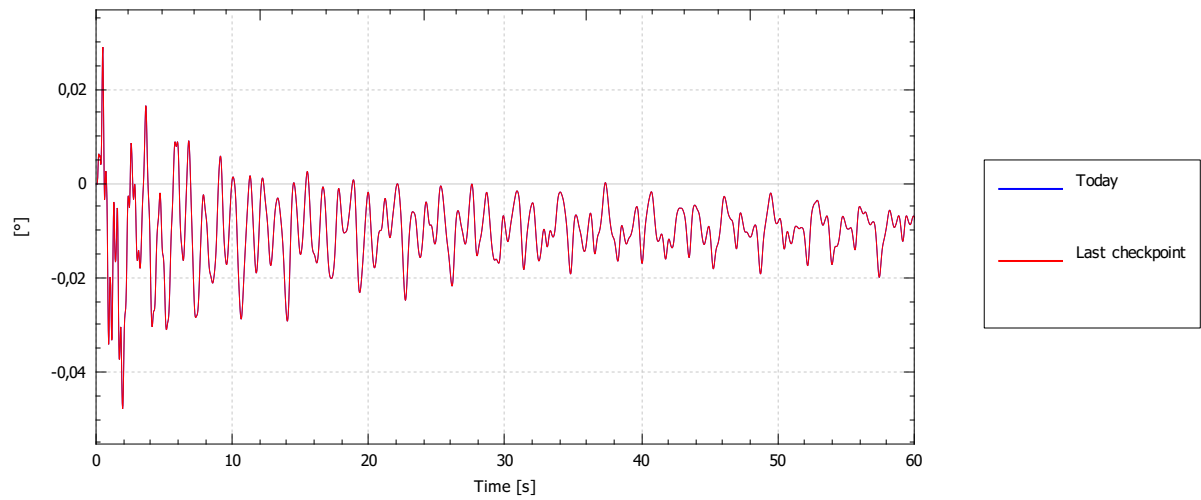
Yaw angle relative to forward



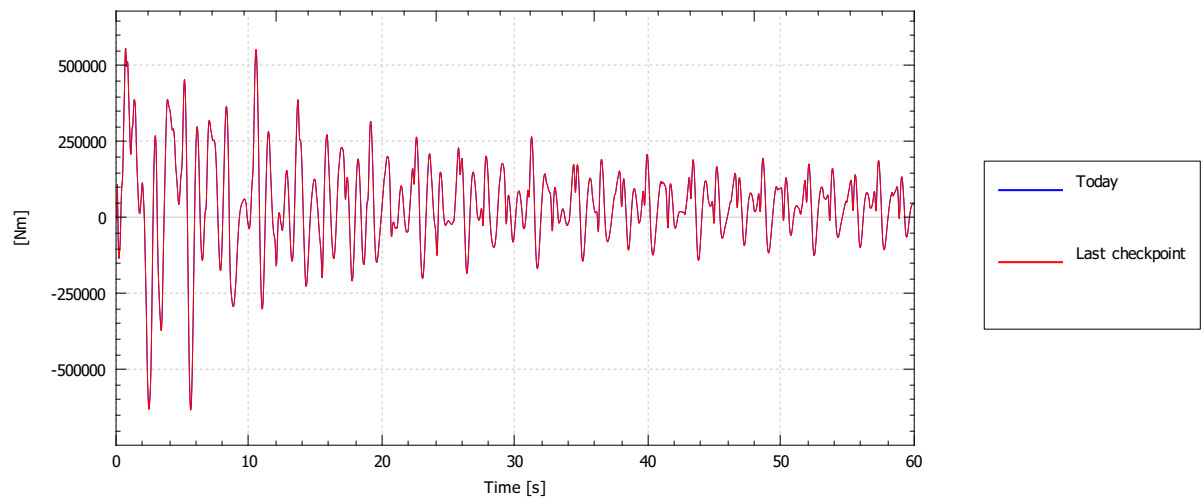
Yaw angle to reference direction



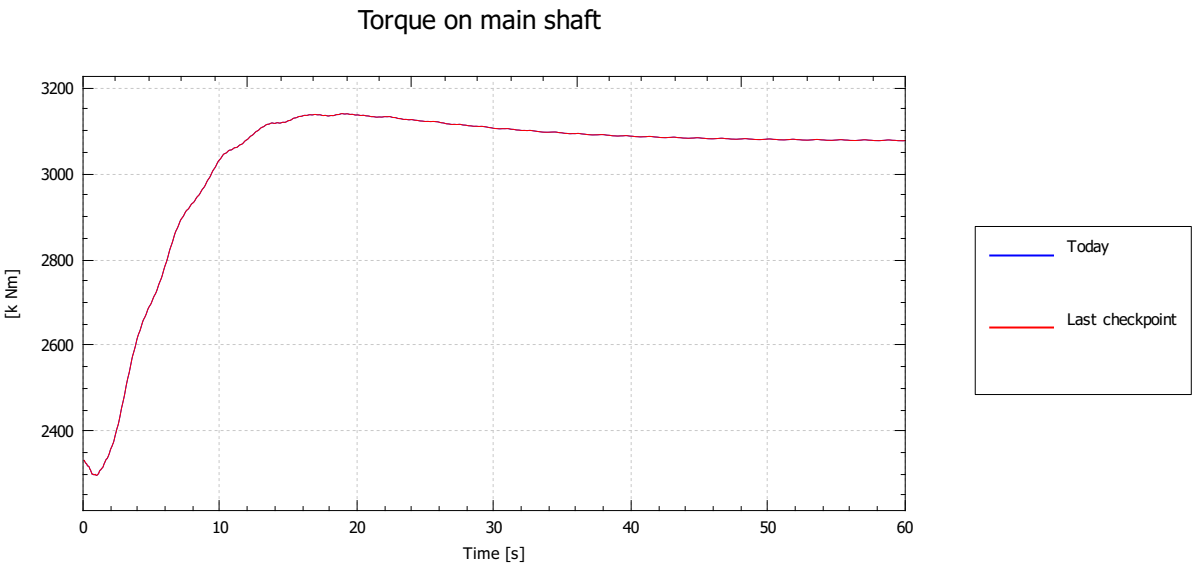
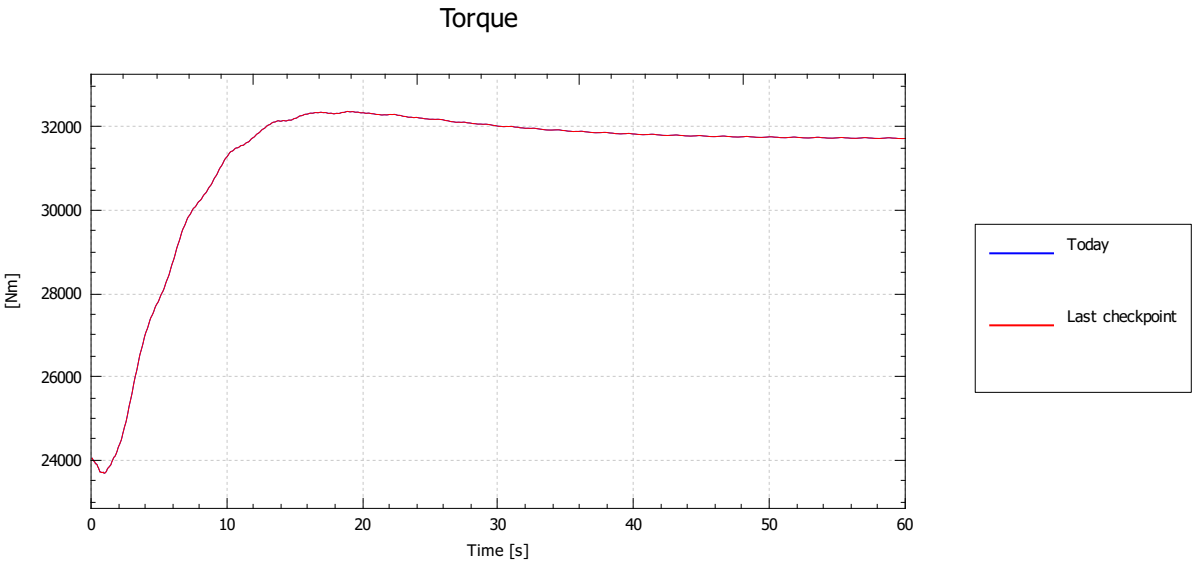
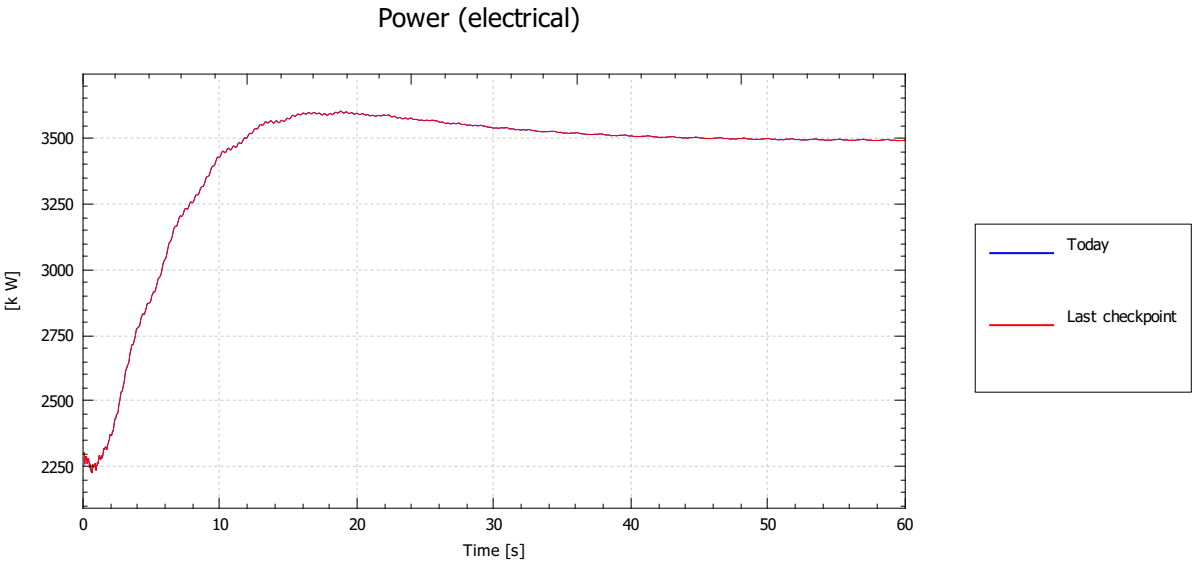
Yaw error



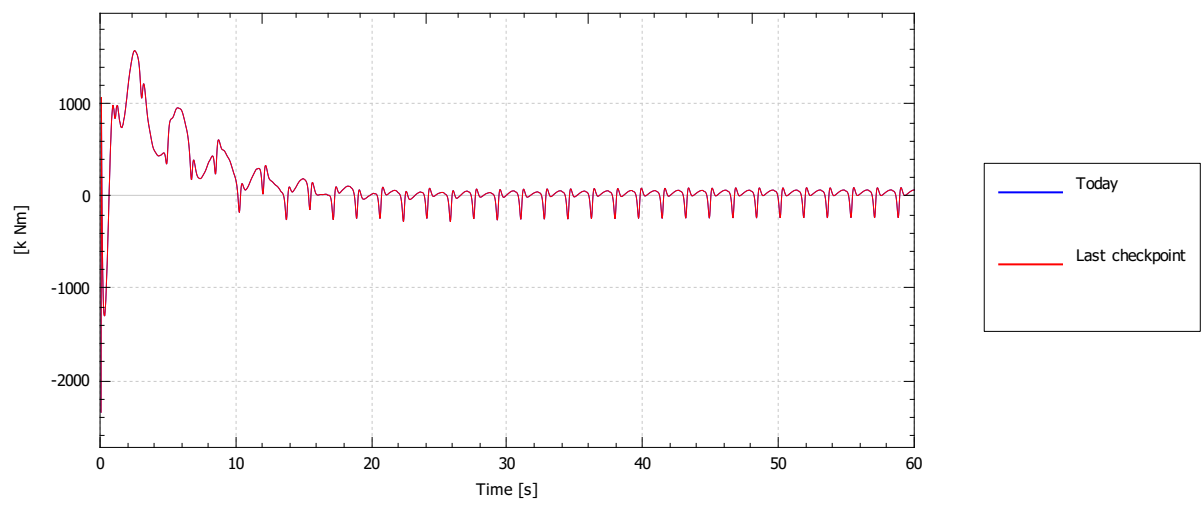
Torque about yaw axis



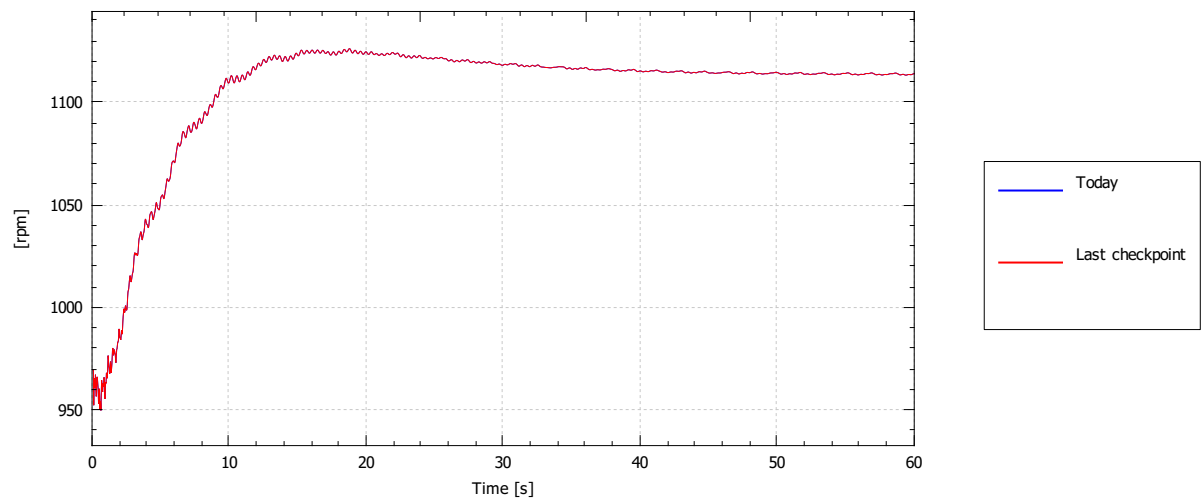
Generator



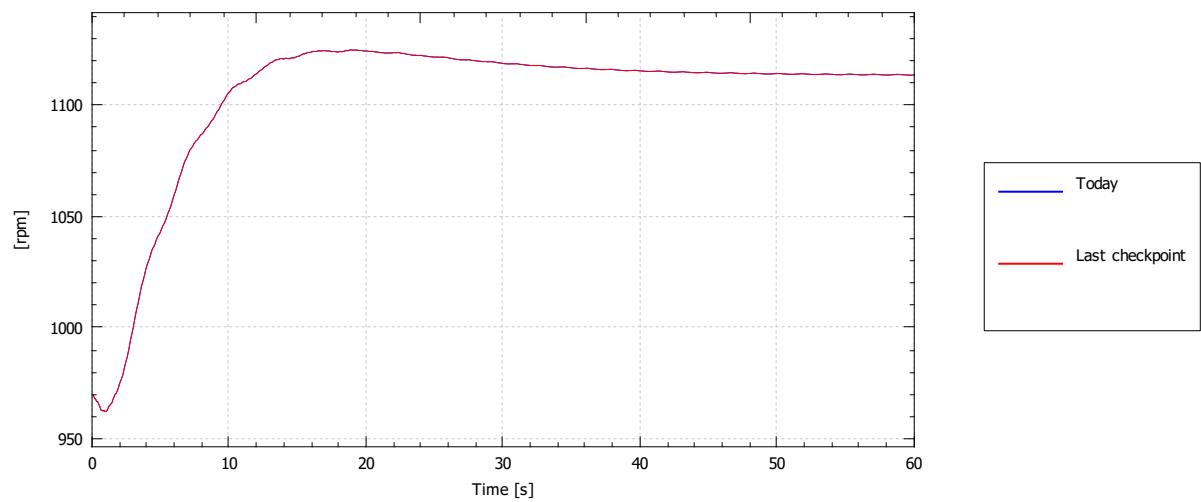
Torque diff. on main shaft



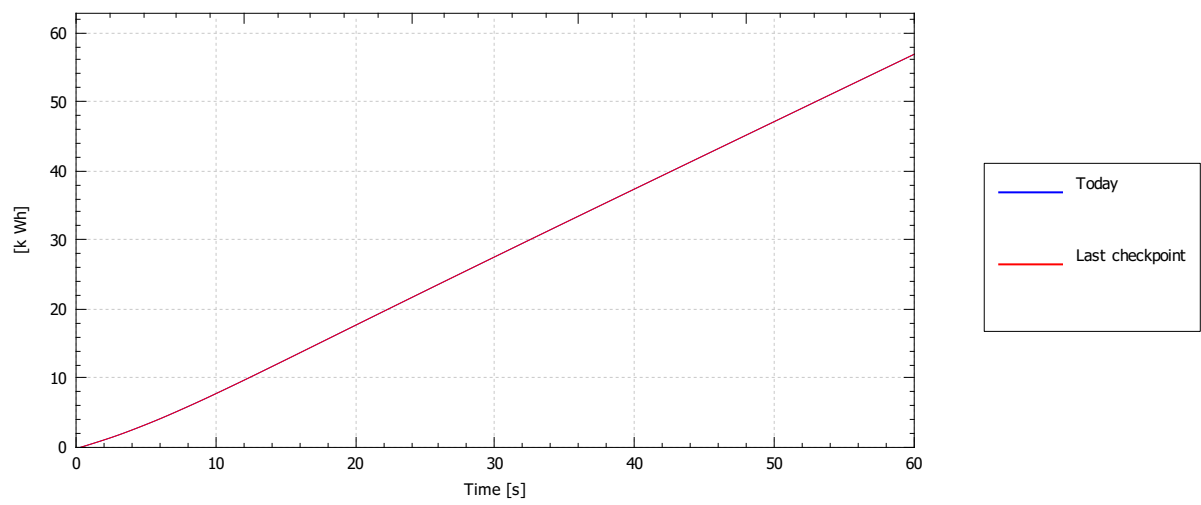
RPM



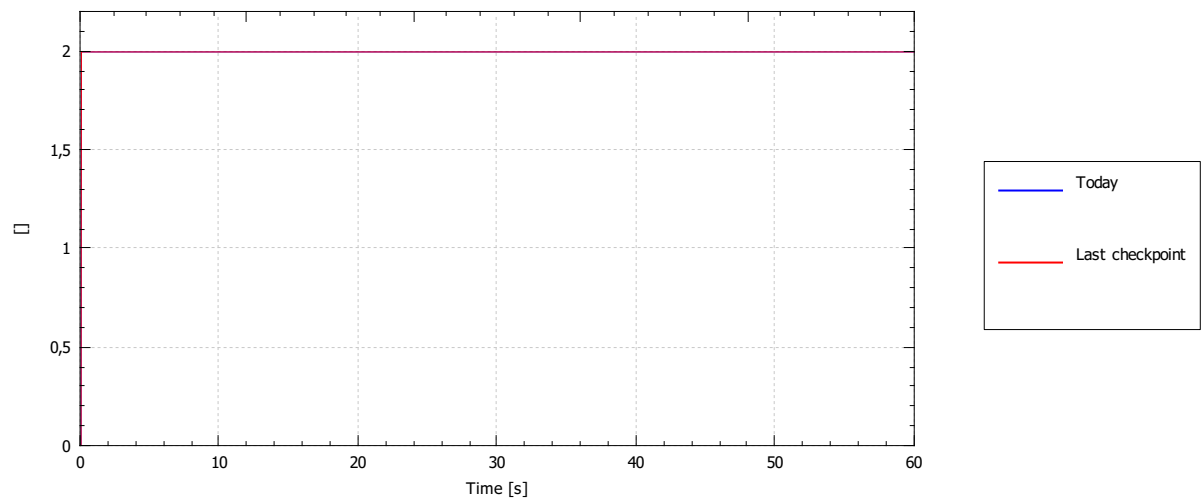
Filtered RPM



### Electricity production

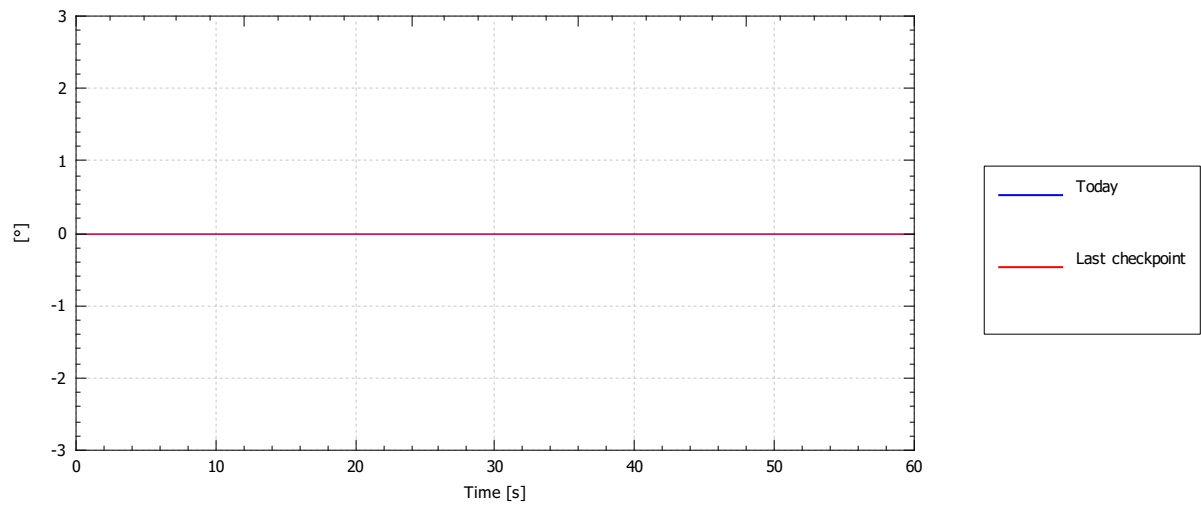


### Region

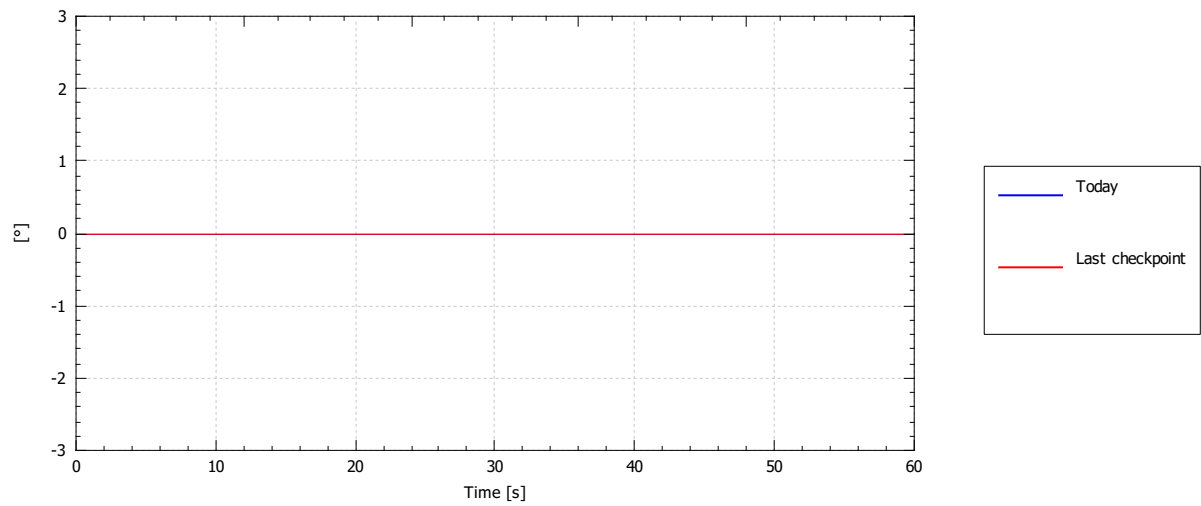


### Demanded pitch controller

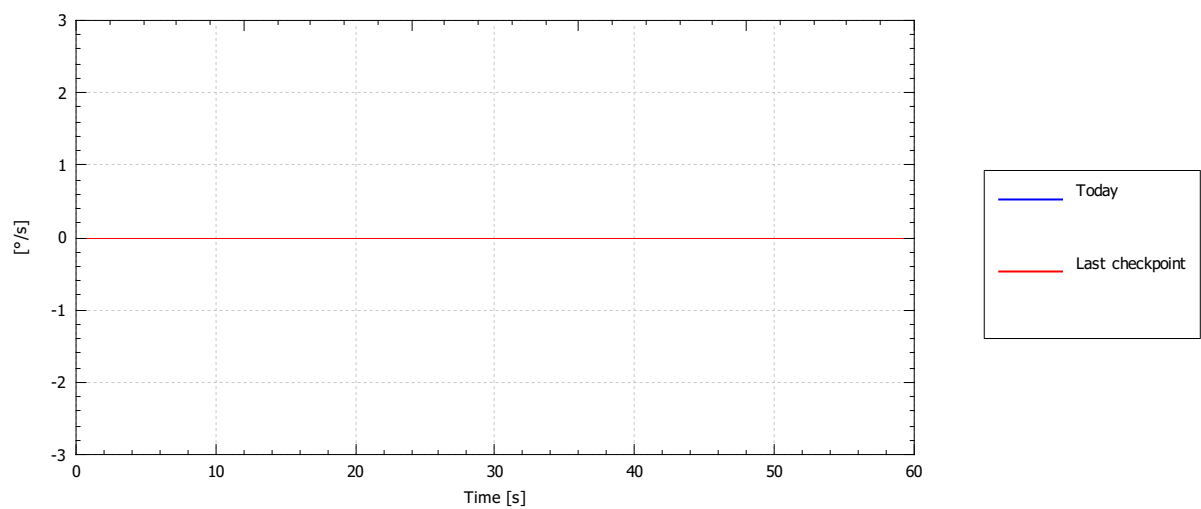
Demanded collective pitch angle



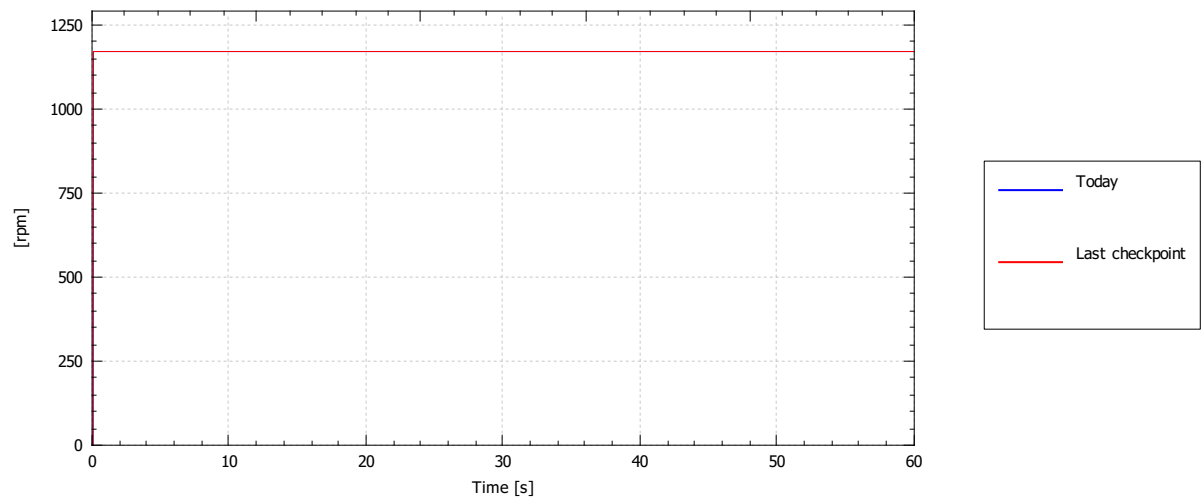
Cumulative demanded collective pitch angle



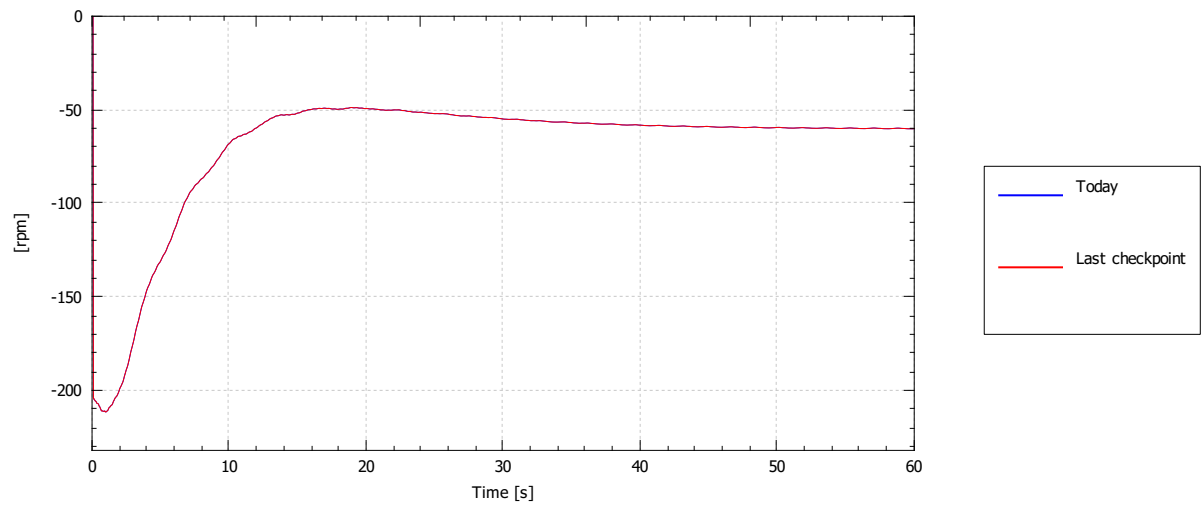
Demanded collective pitch angle rate



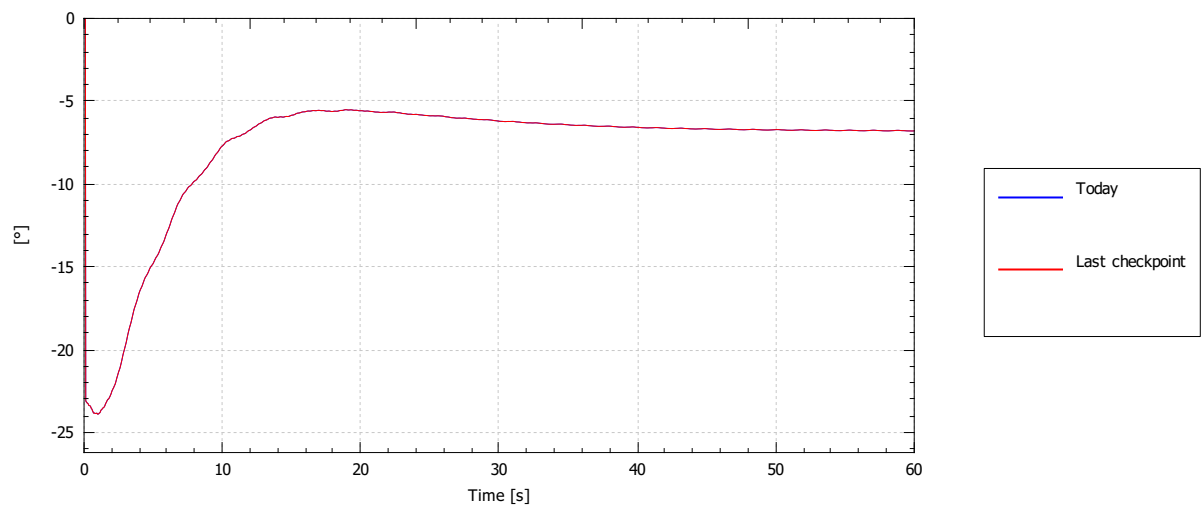
Set point



RPM error

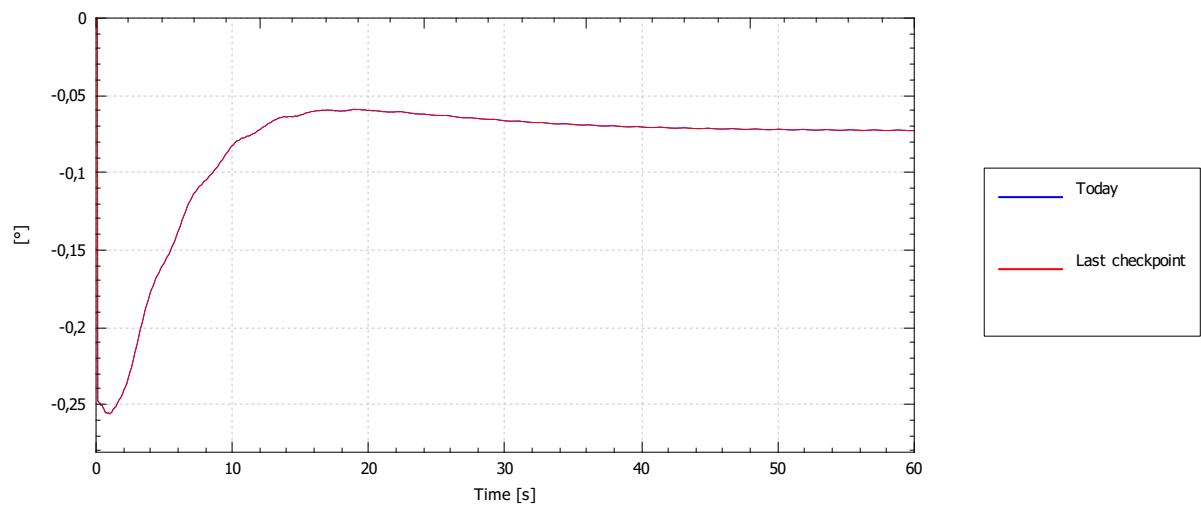


P term

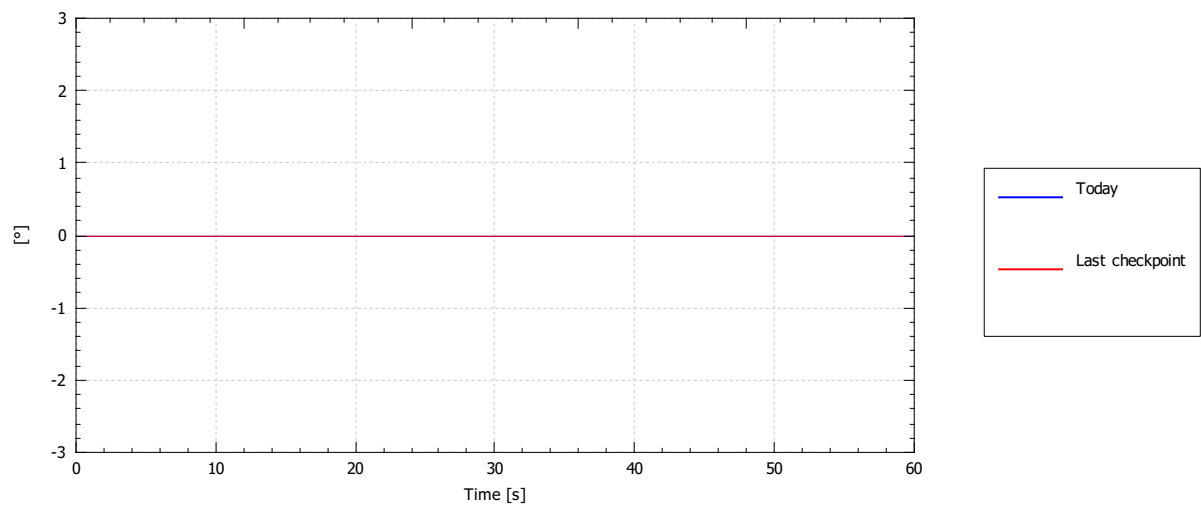




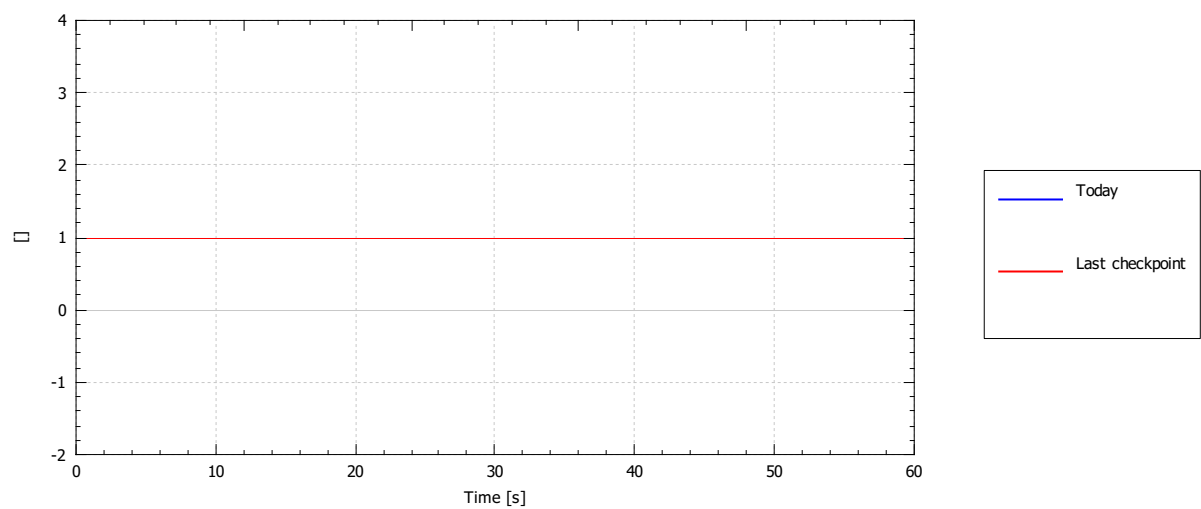
I term



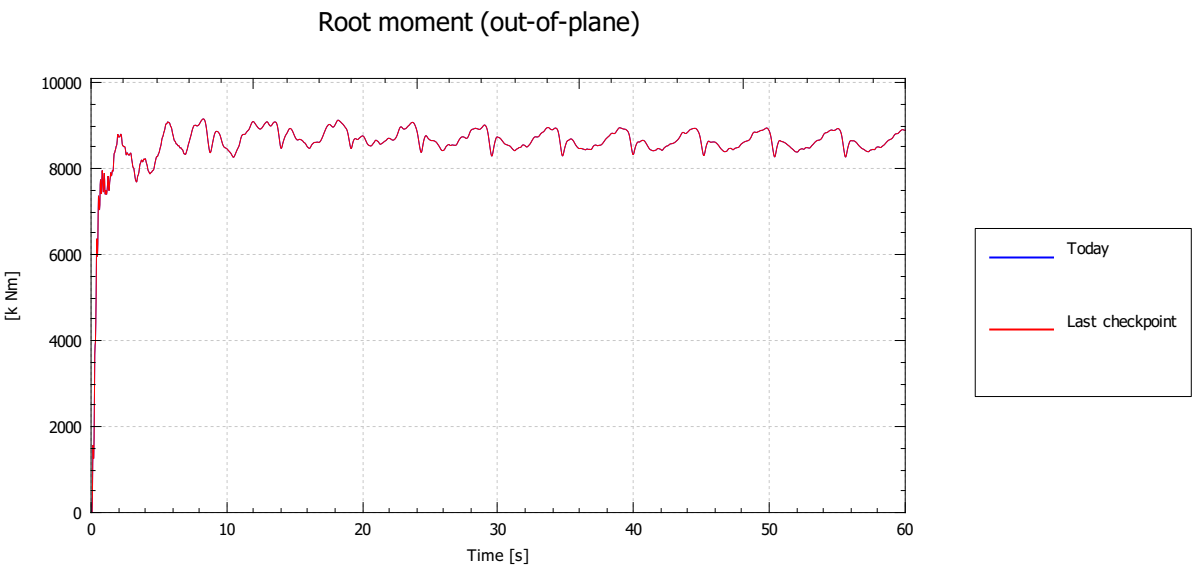
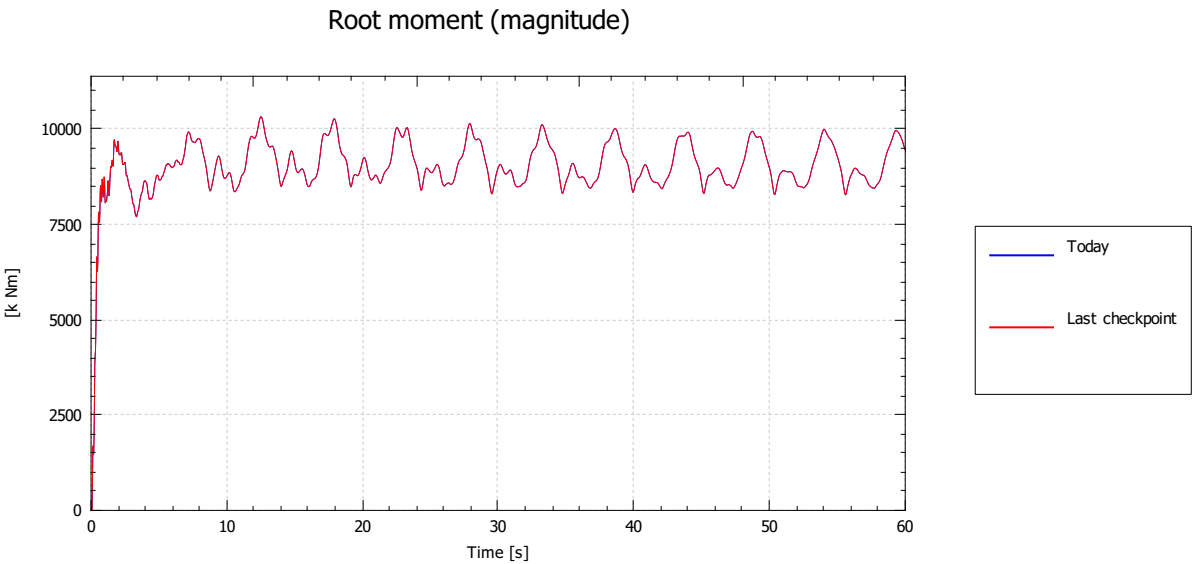
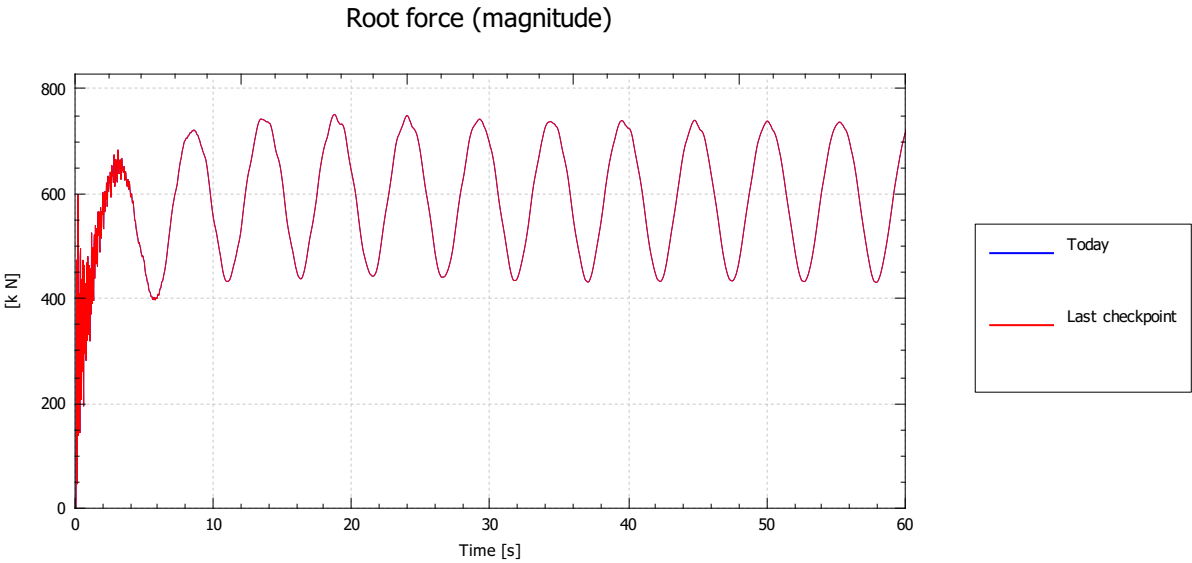
D term



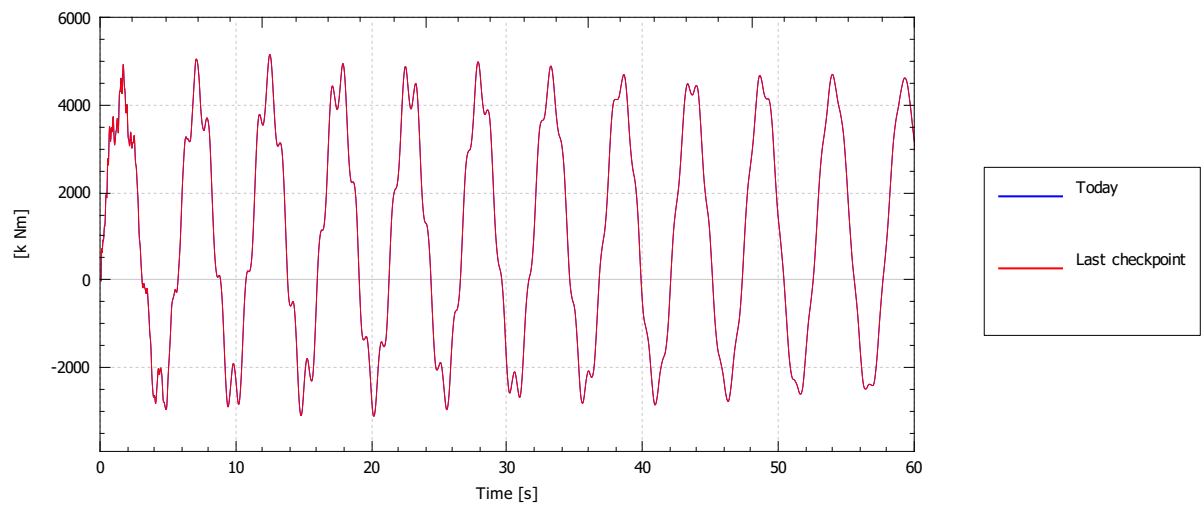
Gain scheduling factor



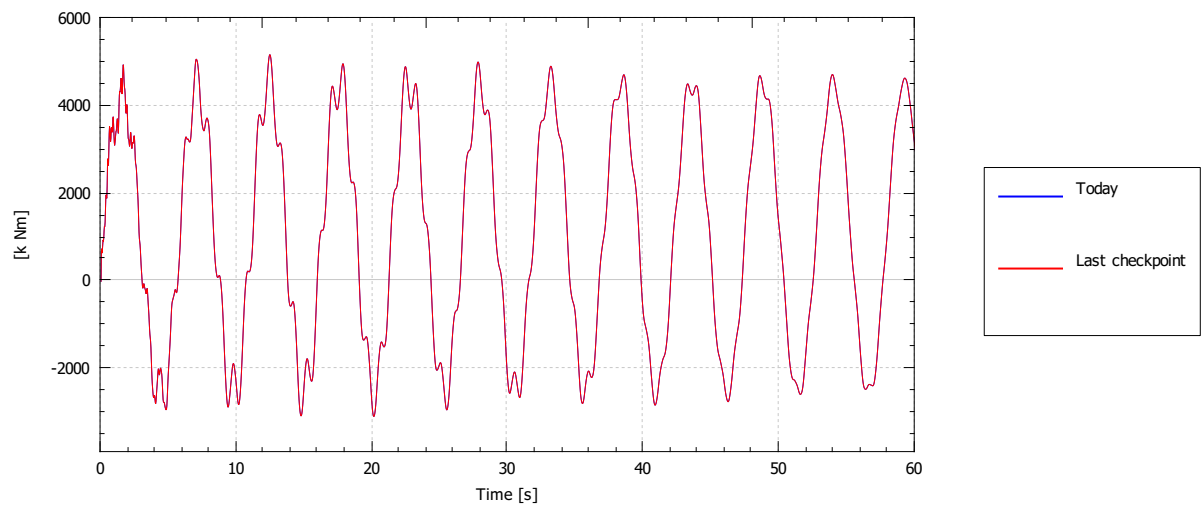
Blade [Time] [Blade 1]



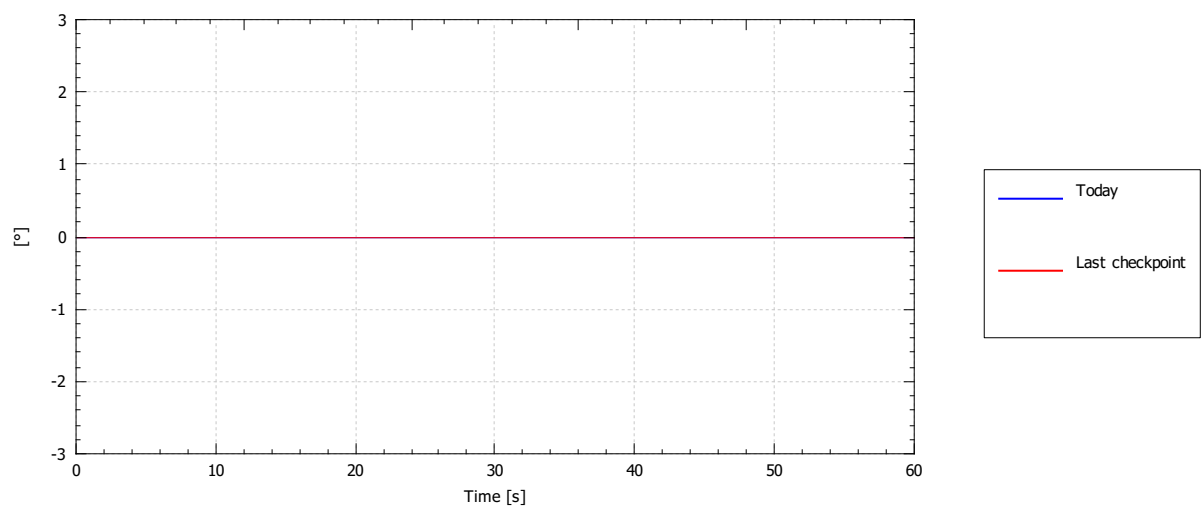
Root moment (in-plane)



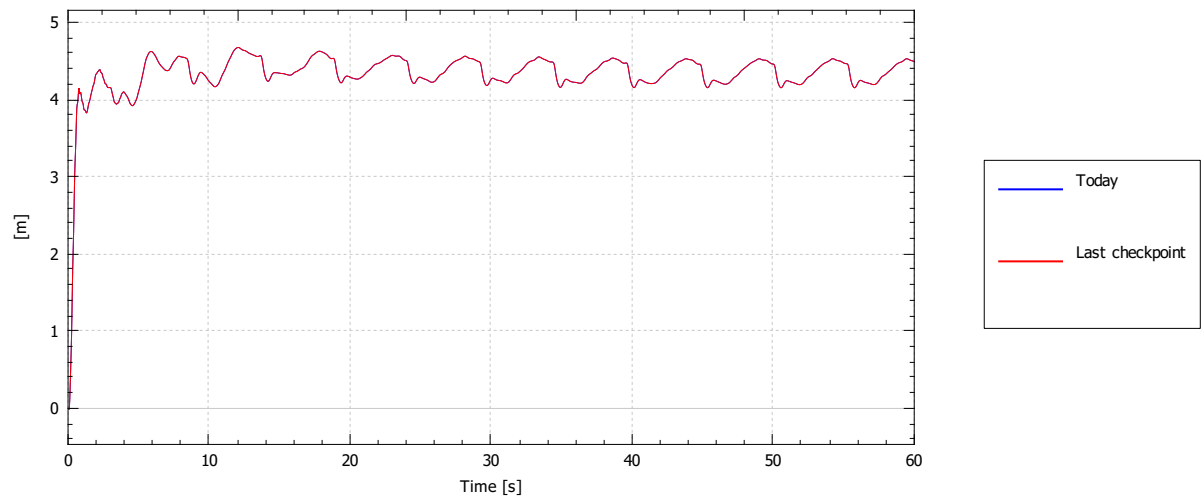
Root moment about shaft



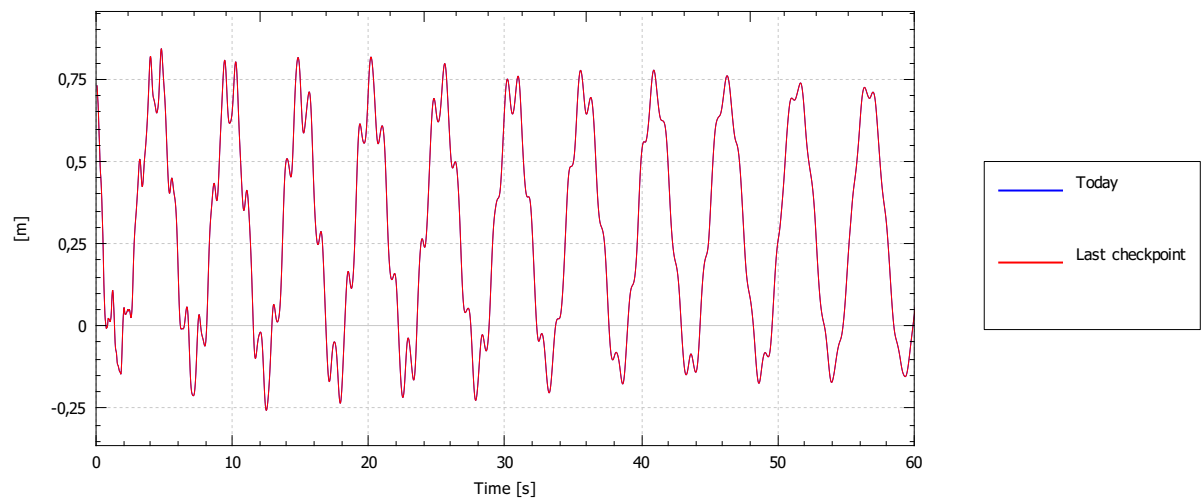
Pitch angle



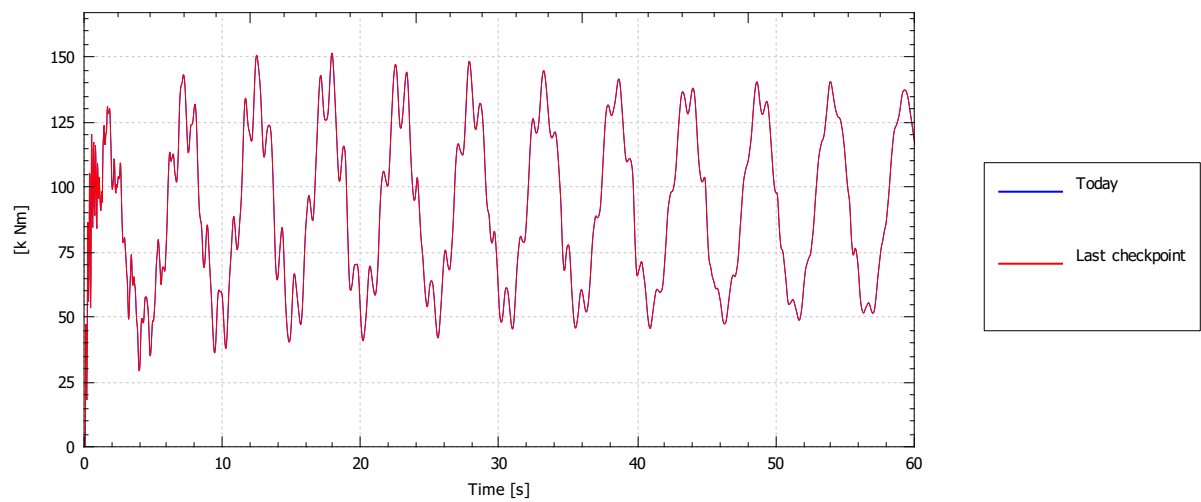
Tip deflection (out-of-plane)

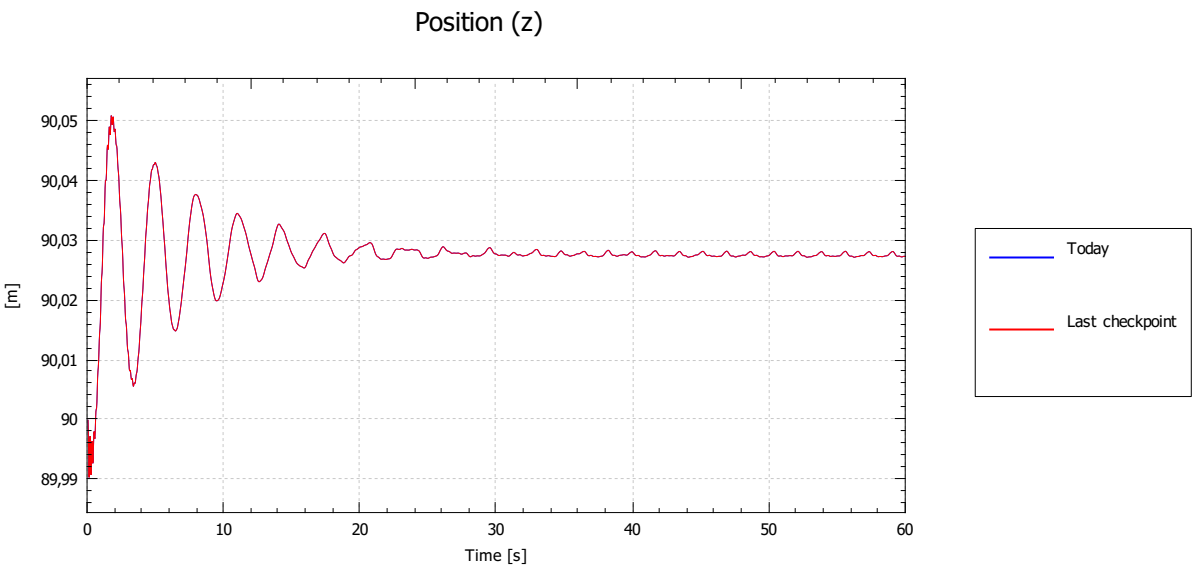
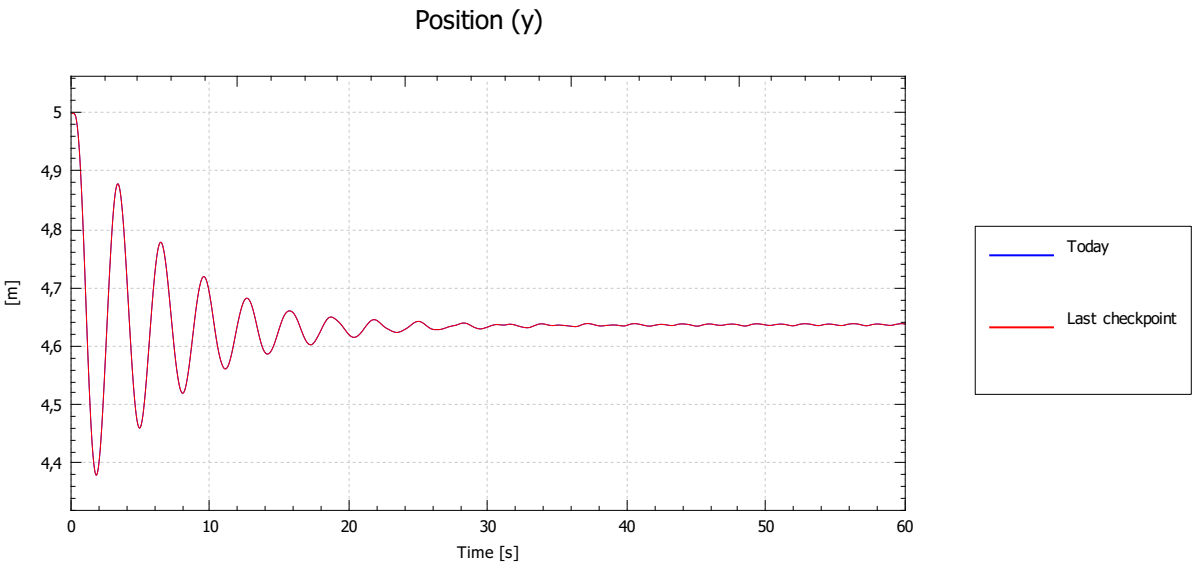
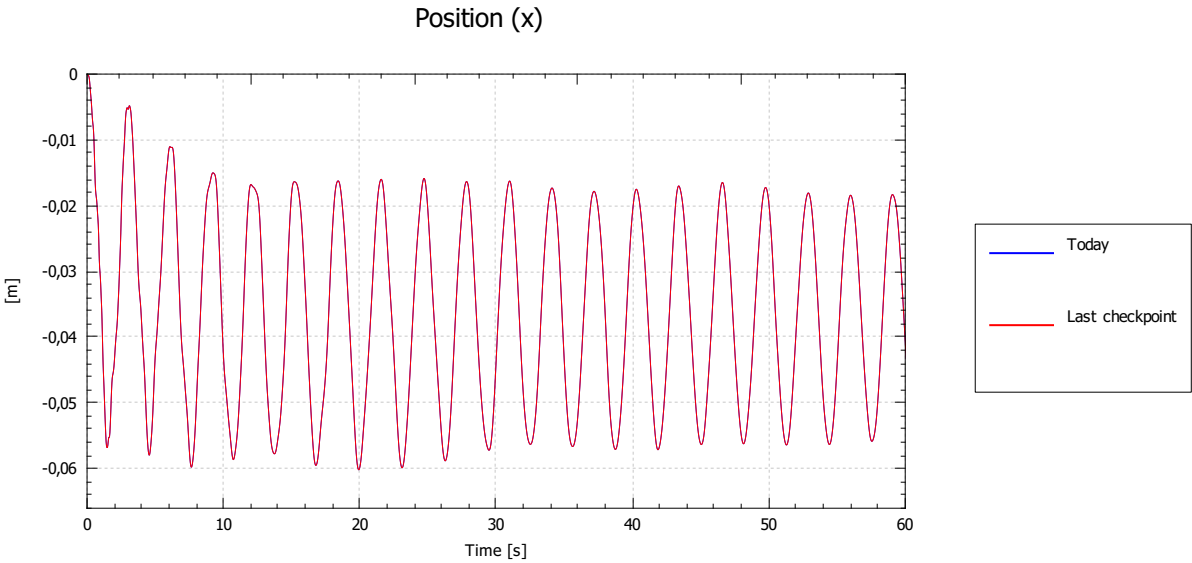


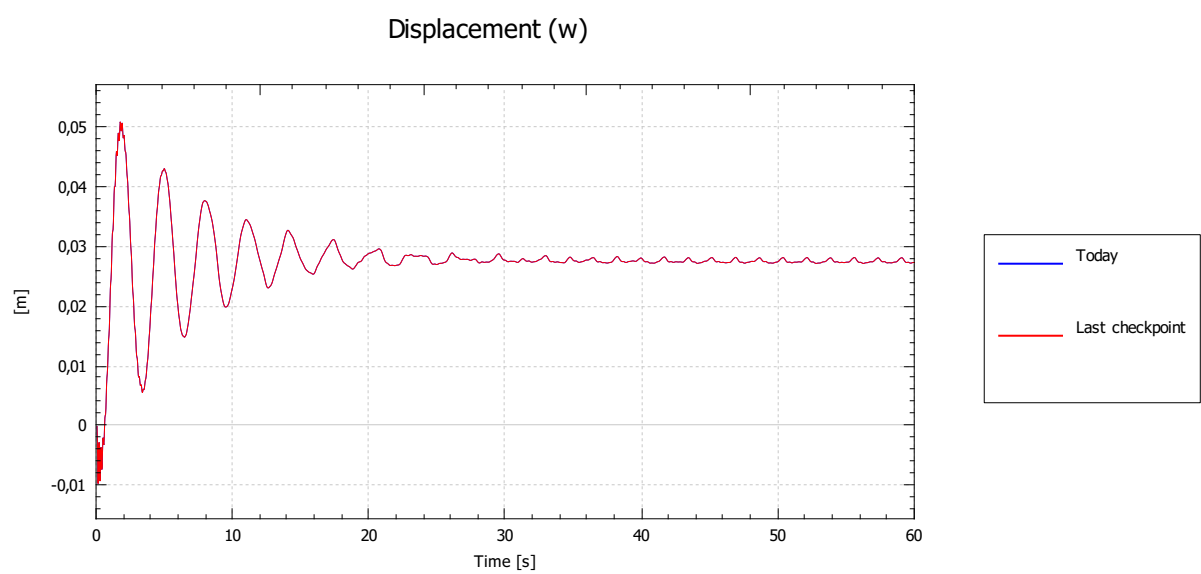
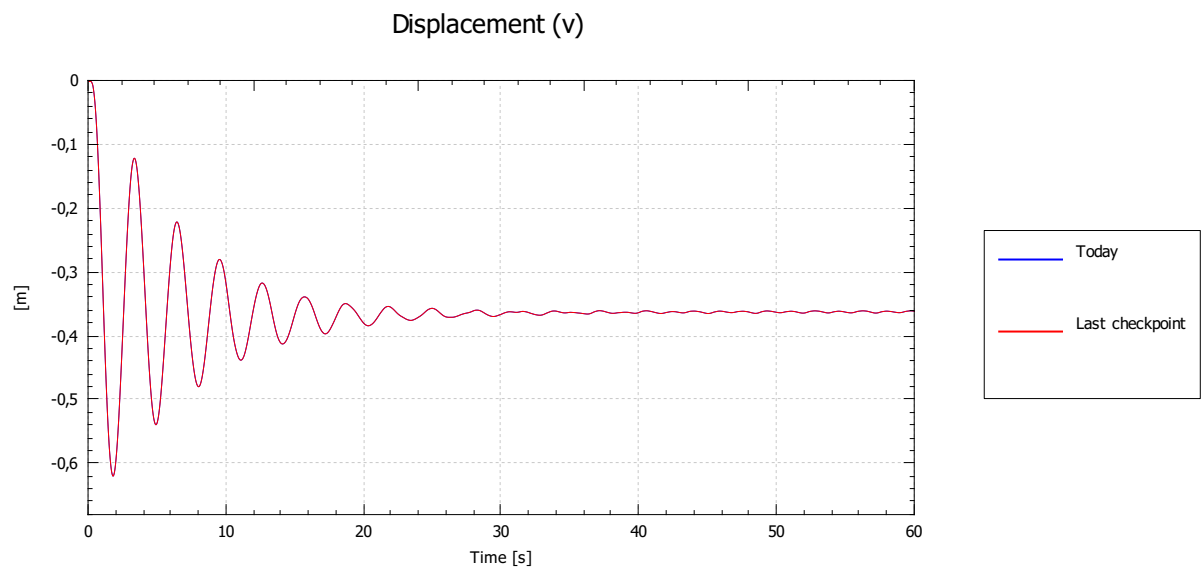
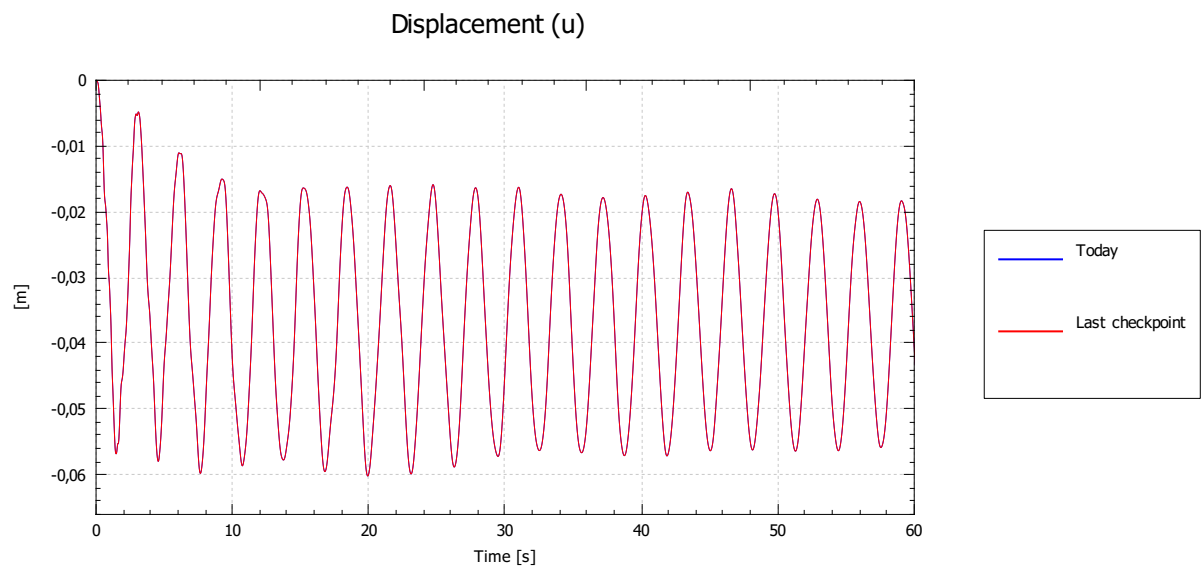
Tip deflection (in-plane)



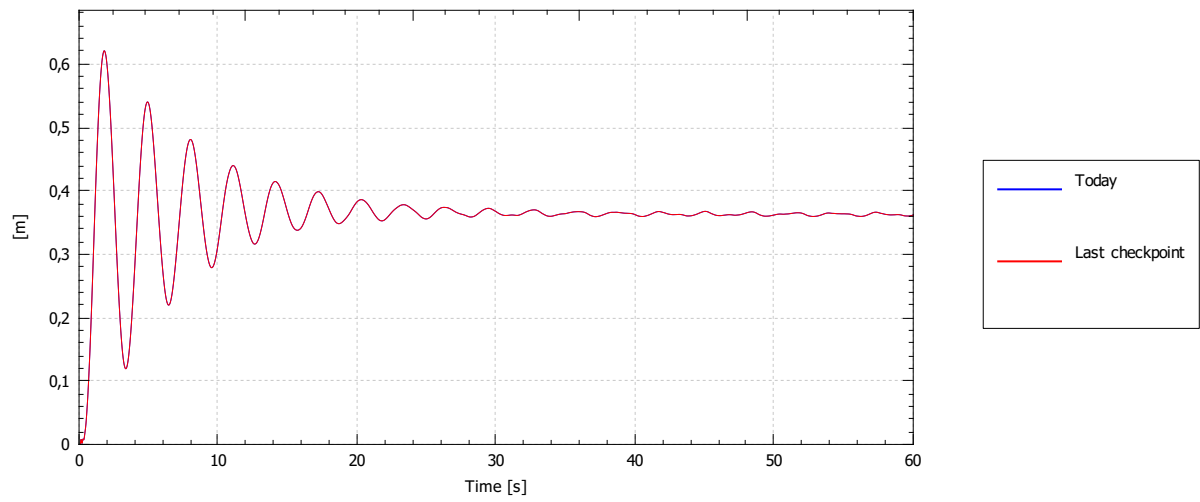
Root torque



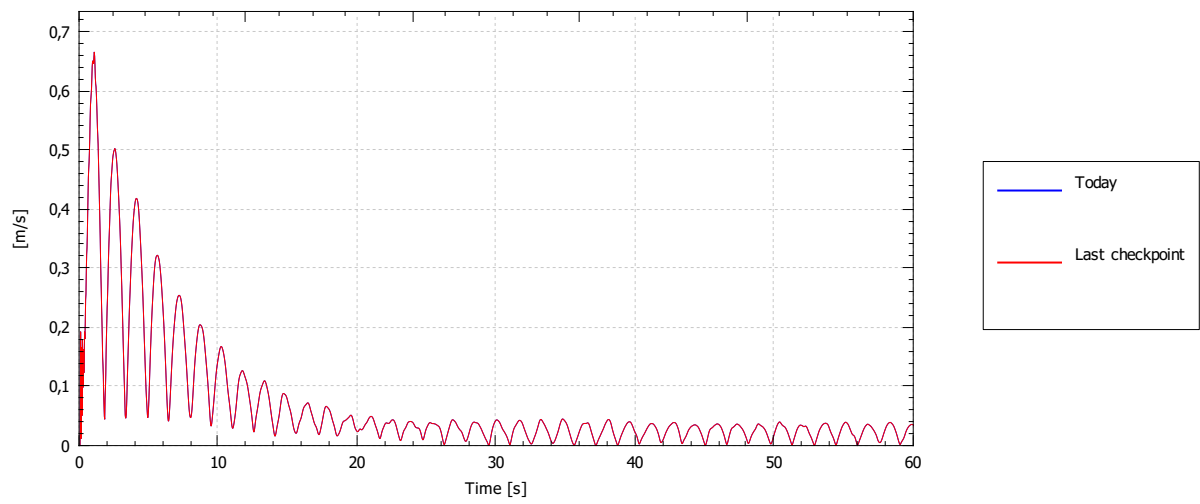




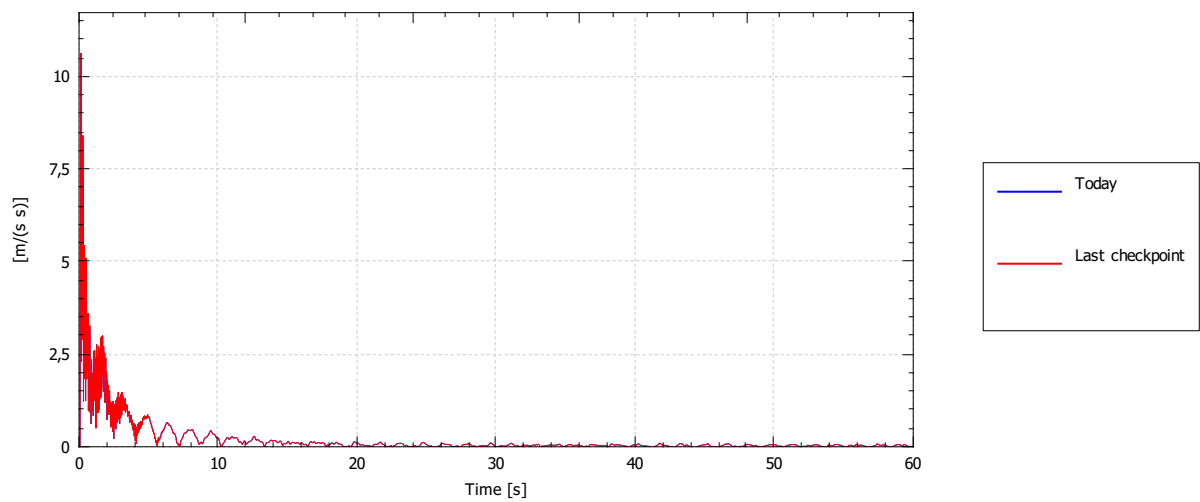
Displacement magnitude



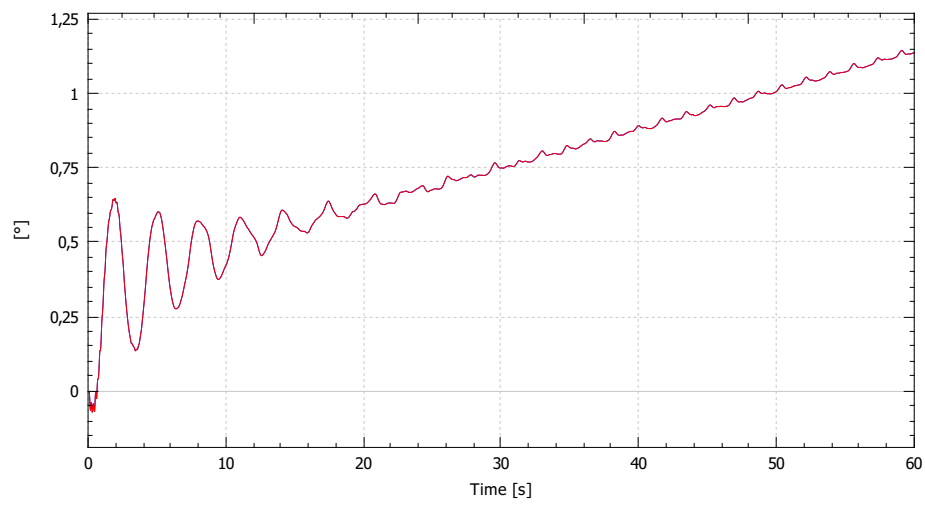
Speed



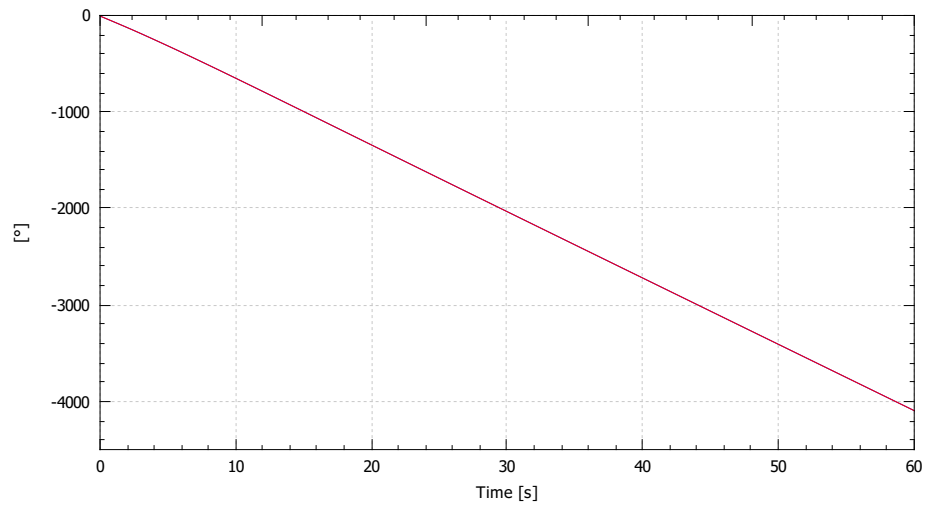
Acceleration, magnitude



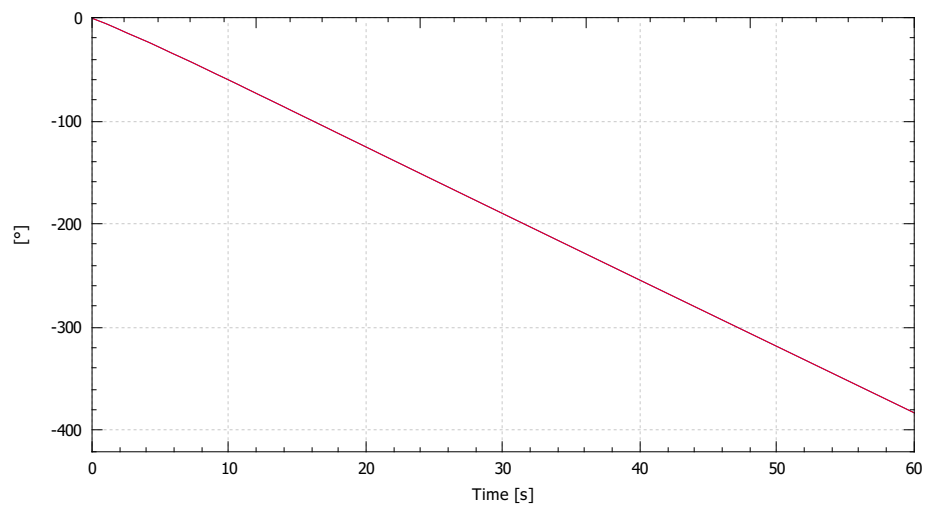
Rotational displacement (ru)



Rotational displacement (rv)

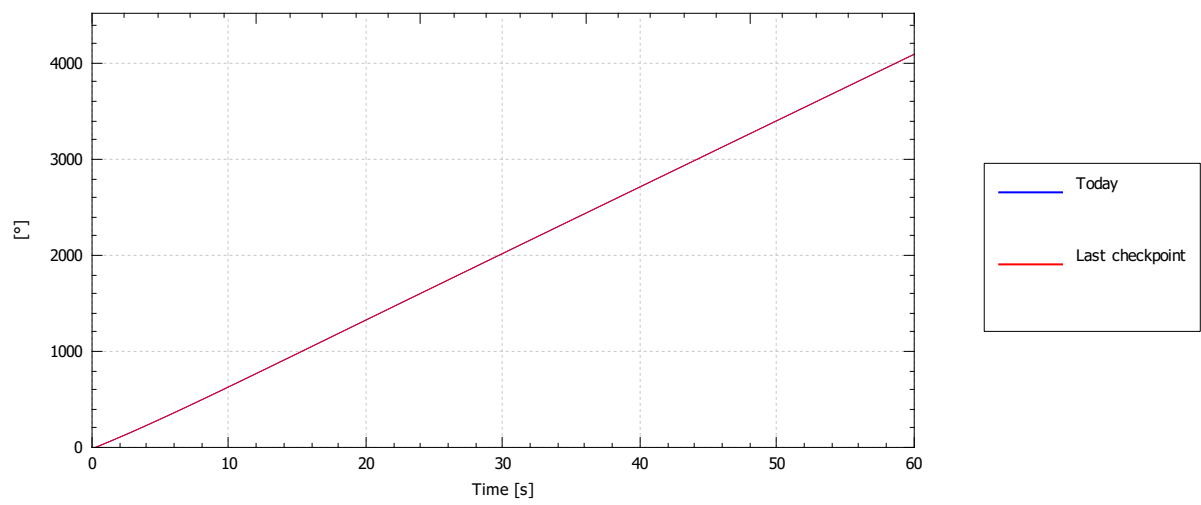


Rotational displacement (rw)

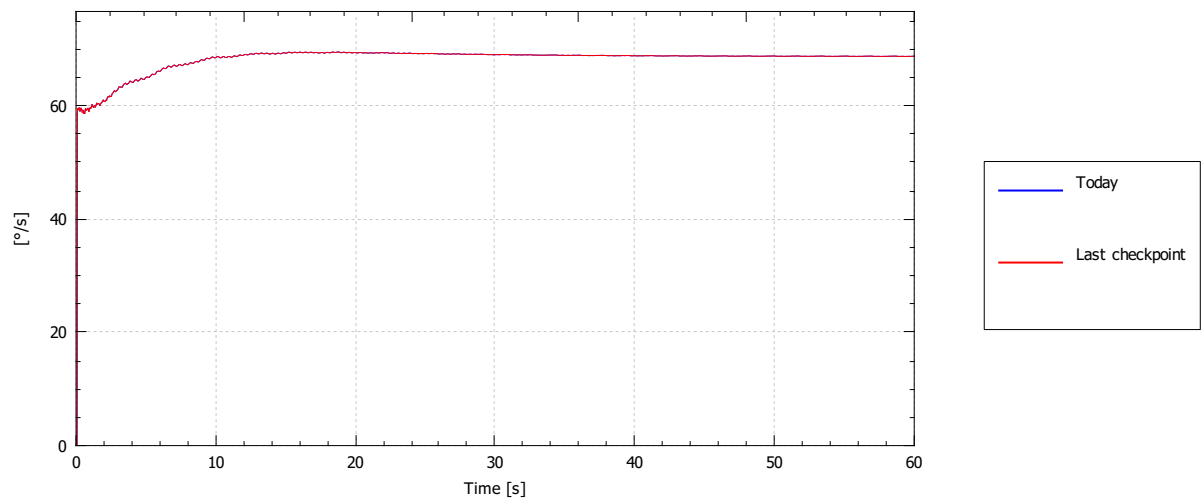




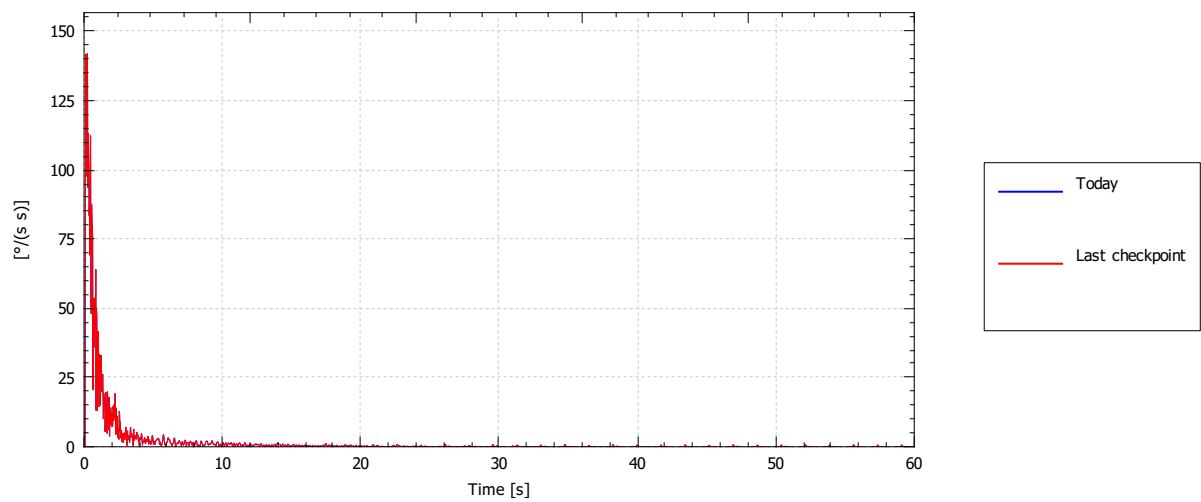
Rotational displacement magnitude



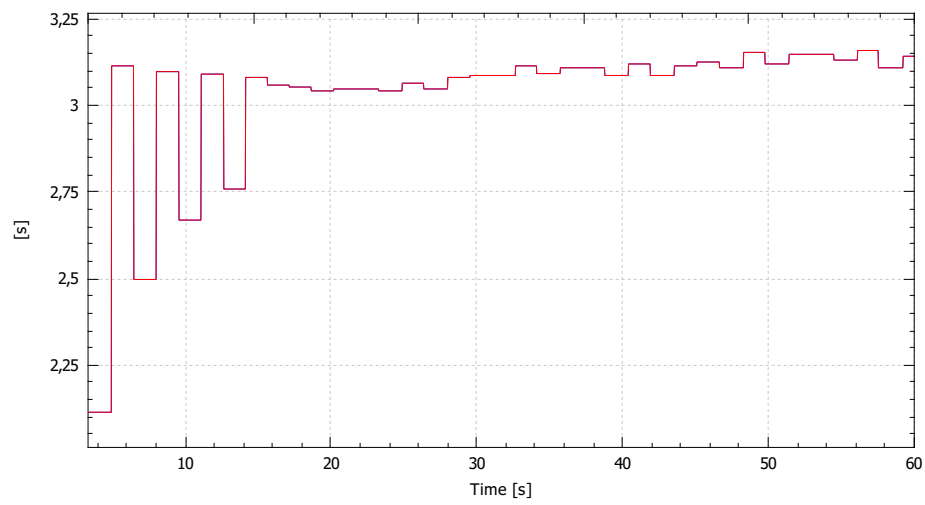
Rotational speed



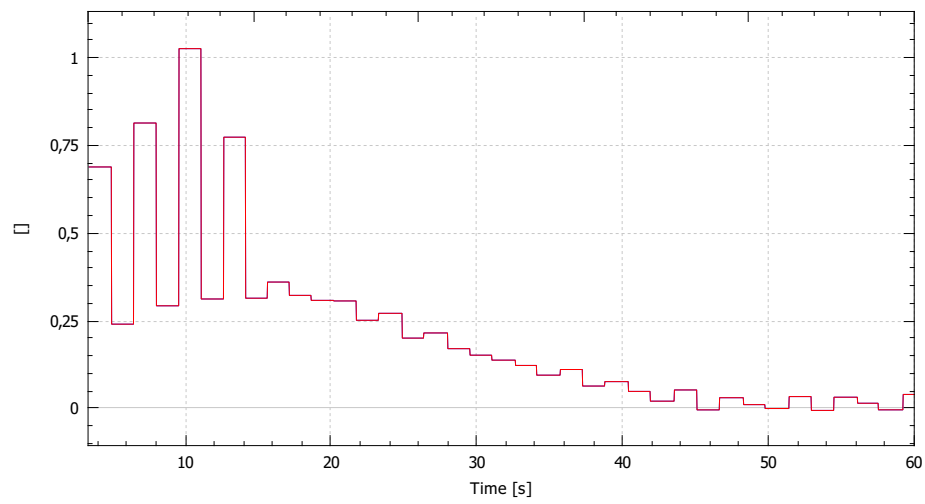
Rotational acceleration mag



### Displacement period



### Displacement logarithmic decrement



### Displacement damping ratio

