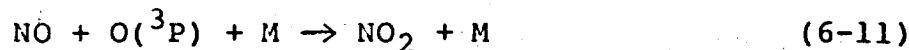
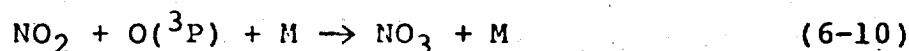


nitrogen trioxide and nitrogen dioxide can dissociate or react with water to form nitric acid (HONO<sub>2</sub>):



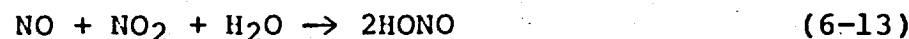
Additional reactive pathways which can take place between oxygen atoms and NO<sub>2</sub> and NO include:



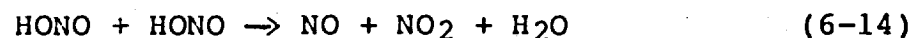
Also, NO and NO<sub>3</sub> can react to regenerate NO<sub>2</sub>:



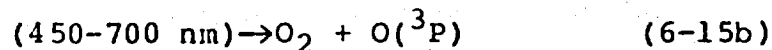
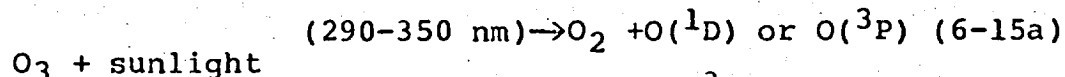
Nitrous acid is produced by:



and may react bimolecularly to regenerate the original reactants:



The unexcited and first excited electronic state of the oxygen atom are produced by ozone photolysis in sunlight:



The singlet-D oxygen [O(<sup>1</sup>D)] atom is much more reactive than the ground state triplet-P oxygen [O(<sup>3</sup>P)] atom. For example, it reacts efficiently during collision with a water molecule to form an important transient species in the atmosphere, the hydroxyl radical:

