We report the detection of widely distributed

nightside emissions from nitric oxide

nightglow and auroral emissions on Mars. The observations

were made with the Imaging Ultraviolet

Spectrograph (IUVS), a remote sensing instrument on

the Mars Atmosphere and Volatile EvolutioN

(MAVEN) spacecraft. Both emissions have been

detected by the SPICAM UV spectrograph on the

Mars Express mission. Key differences between the

SPICAM and IUVS observations and results include:

• IUVS observations were obtained as limb scans,

allonging multiple vertical profiles to be obtained

each periapse pass

• IUVS observations detected nightglow and auroral

emissions with greater temporal frequency

and spatial coverage, sometimes up to hundreds

of kilometers

• The IUVS instrument is also capable of mapping

the emissions in two dimensions in nadir viewing

• MAVEN carries a suite of fields-and-particle

instruments capable of probing the precipitating

particle population and magnetic field environment.

Over the course of MAVEN’s mission, finding the

distribution of auroral emission relative to crustal

magnetic fields will be a high priority. Similarly,

mapping the NO emission as a tracer of seasonallydependent

day-to-night global circulation will help

constrain global circulation models of the atmosphere.