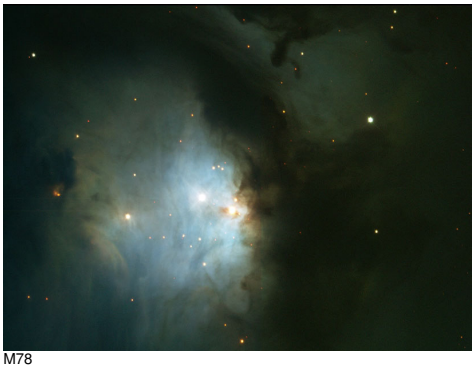
ACCRETION DISK ON IRAS 05436-0007

During this month travel a finger-width northeast of Zeta Orionis for a delightful area of bright nebulae called M78 (Right Ascension: 05h 46min 47s; Declination: +00º 00' 50"). The 1 600 light-year distant M78 is part of the vast complex of nebulae.

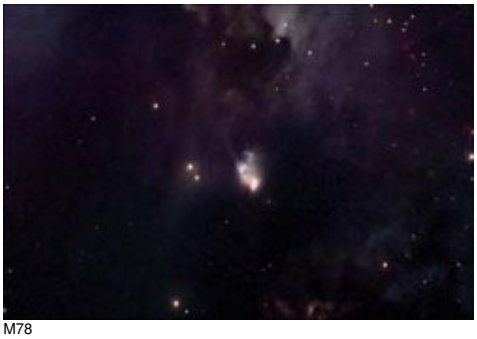
Messier 78 (also known as **M 78** or **NGC 2068**) is a reflection nebula in the constellation Orion. It was discovered by Pierre Méchain in 1780 and included by Charles Messier in his catalogue of comet-like objects that same year.



M78
Credit: Sloan Digital Sky Survey

M78 is the brightest diffuse reflection nebula of a group of nebulae that include NGC 2064, NGC 2067 and NGC 2071. This group belongs to the Orion Molecular Cloud Complex and is about 1 600 light years distant from Earth. M78 is easily found in small telescopes as a hazy patch and involves two stars of 10th magnitude. These two stars, *HD 38563A* and *HD 38563B*, are responsible for making the cloud of dust in M78 visible by reflecting their light.

About 45 variable stars of the *T Tauri* type, young stars still in the process of formation as well as some 17 Herbig-Haro objects are known in M78. On January 23, 2004, a teenager named Jay McNeil took some long exposure photos of M78 and made a huge discovery. As he looked at the photographs he had made, there was a nebulous patch on them that had no designation anywhere he could find! After reporting his findings to professionals, Jay McNeil realized he had stumbled onto something unique, a variable accretion disk around a newborn star—IRAS 05436-0007. McNeil's Nebula is a brightened by a variable star and therefore may not be bright enough to be easily seen (just south of M78) because circumstances play a big role on its observation.



M78
Credit: Adam Block (KPNO Visitor Program), NOAO, AURA, NSF

McNeil's Nebula teaches you a big lesson. Before you assume that being "just" a school astronomer has no real importance to science, remember this teenager in a Kentucky backyard with an ordinary telescope… catching what every professional had missed before!

Links:
Astronomy Picture of the Day - McNeil Nebula
Wikipedia - M78