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High-Mass Star Formation in the Outer Scutum-Centaurus Arm

WILLIAM ARMENTROUT, LOREN ANDERSON, West Virginia University, DANA BALSER, National Radio Astronomy Observatory, TOM BANIA, Boston University, TOM DAME, Harvard University, TREY WENGER, University of Virginia — Galactic HII regions are areas of ionized Hydrogen surrounding young, high-mass stars and can be detected across the entire Milky Way. The HII Region Discovery Survey (HRDS; Anderson et al. 2011; Bania et al., 2012; Anderson et al., submitted) has discovered nearly 1000 HII regions by detection of their Hydrogen radio recombination lines (RRLs) with the Green Bank Telescope. Using RRLs, we measure source velocity and determine position within the Galaxy by assuming a rotation curve, but until recently our sample in the far outer Galaxy was incomplete. A new spiral arm segment in the outer Galaxy was discovered by Dame & Thaddeus (2011) and deemed the Outer Scutum-Centaurus arm, or OSC. This arm offers a new laboratory for the study of Galactic structure, high-mass star formation, and chemistry of the outer Galaxy. We searched for new Galactic HII regions in the OSC by targeting regions with an (l,b) location consistent with this arm and discovered 10 OSC HII regions thus far. Detected regions lie at an average distance from the Sun of 20.0 kpc and average distance from the Galactic center of 14.5 kpc with maximum solar distance of 23.5 kpc and maximum Galactic center distance of 17.0 kpc. These are the most distant known Galactic high-mass star formation regions.

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