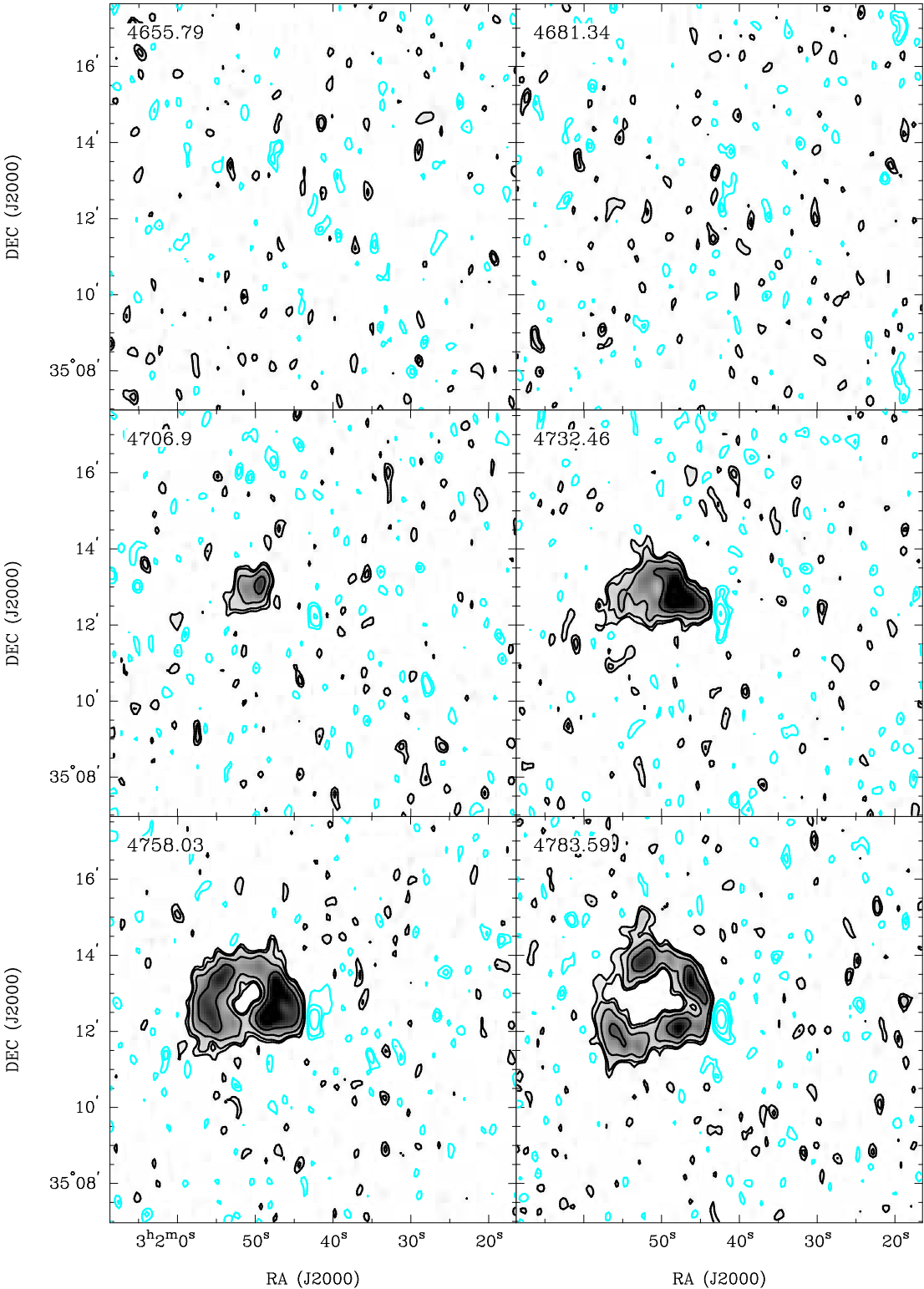1. Channel maps