

**2016 Monsoon Convection and its place in the Large-Scale Circulation using
Doppler Radars**

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Introduction

The figures below show normalised diurnal cycles for the three different cumulus mode categories, compared alongside GPM IMERG rainfall at each site:

- Shallow convection: $2 \leq \text{CTH} < 5$ km
- Cumulus congestus: $5 \leq \text{CTH} < 8$ km
- Deep convection: $\text{CTH} \geq 8$ km

For Figure S1, the total convective area normalised over the diurnal cycle is also shown. Figure S1 is best viewed alongside Figure 7, Figures S2–S4 alongside Figure 8, and Figure S5 alongside Figure 9. For each figure, all applicable cells are split into these three modes, and then normalised by number over the diurnal cycle, where Indian Standard Time (IST) is 5:30 hours ahead of UTC.

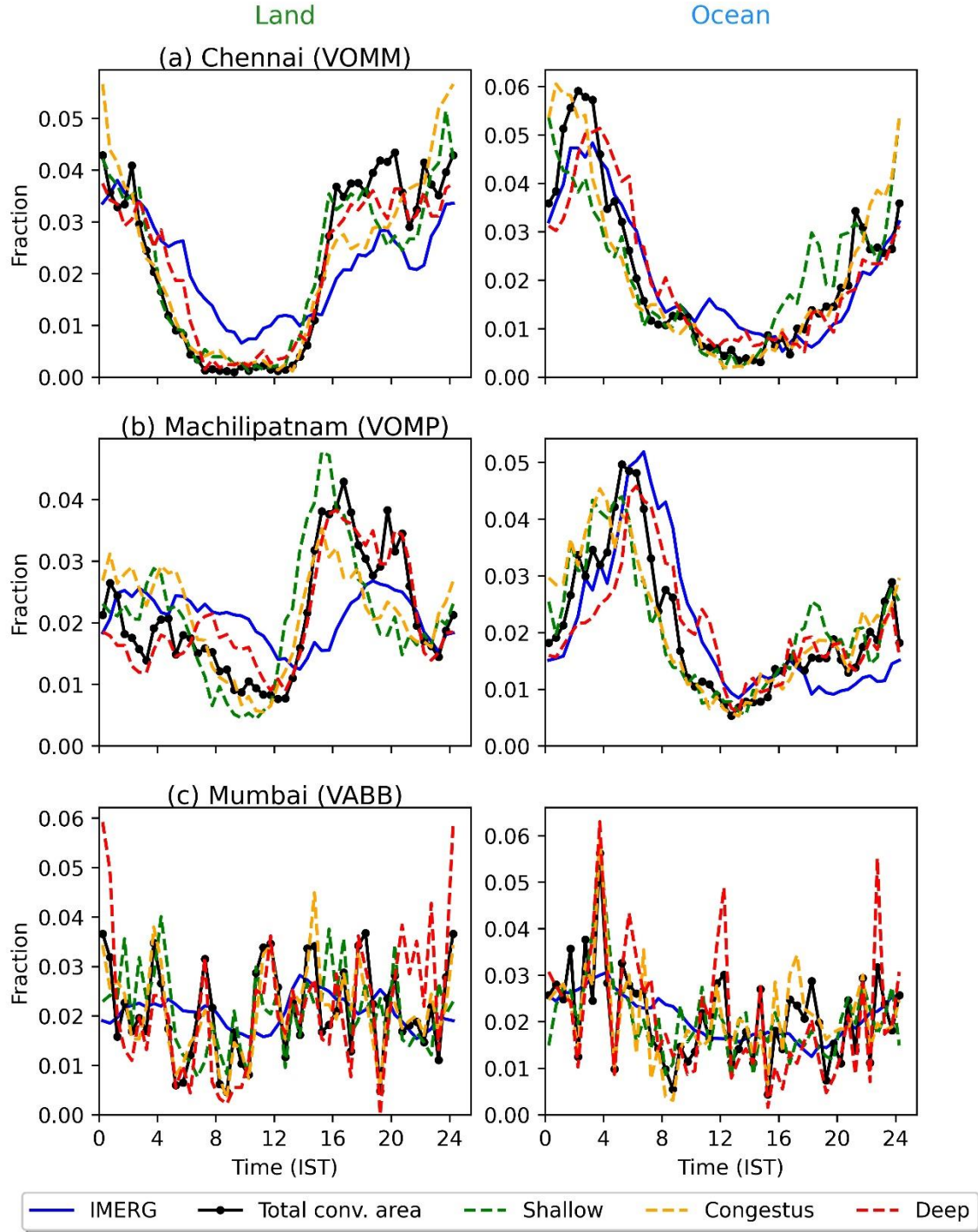


Figure S1. The diurnal cycle in the fraction of cells in different cumulus mode categories: shallow, congestus and deep, split into land and ocean segments for (a) Chennai, (b) Machilipatnam and (c) Mumbai. The black line is the total convective area normalised over the diurnal cycle, and IMERG rainfall is as in Figure 7.

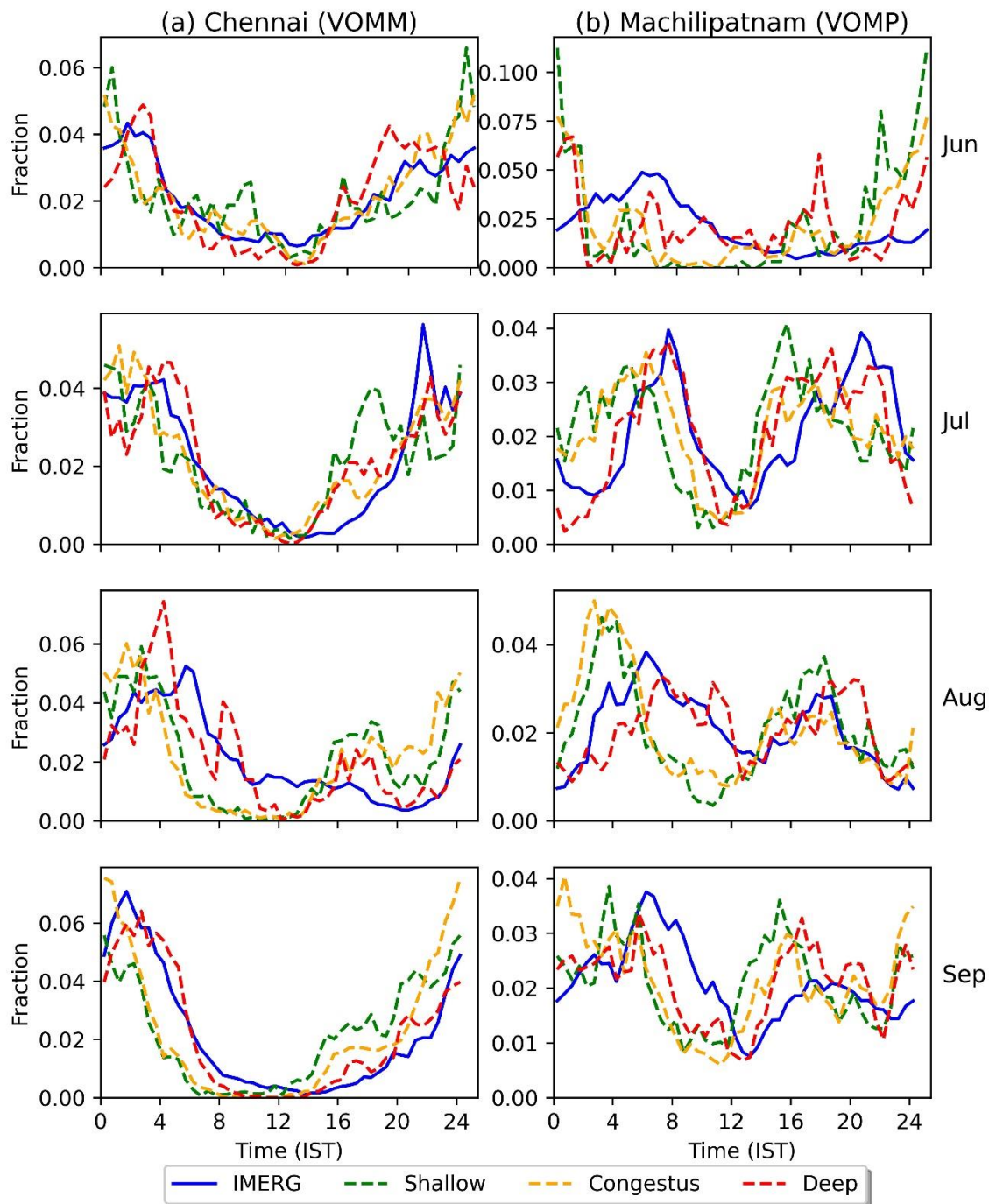


Figure S2. The diurnal cycle of different cumulus modes as in Figure S1, but shown for each month June–September, for all cells in the two south-eastern India sites. Total convective area is not shown.

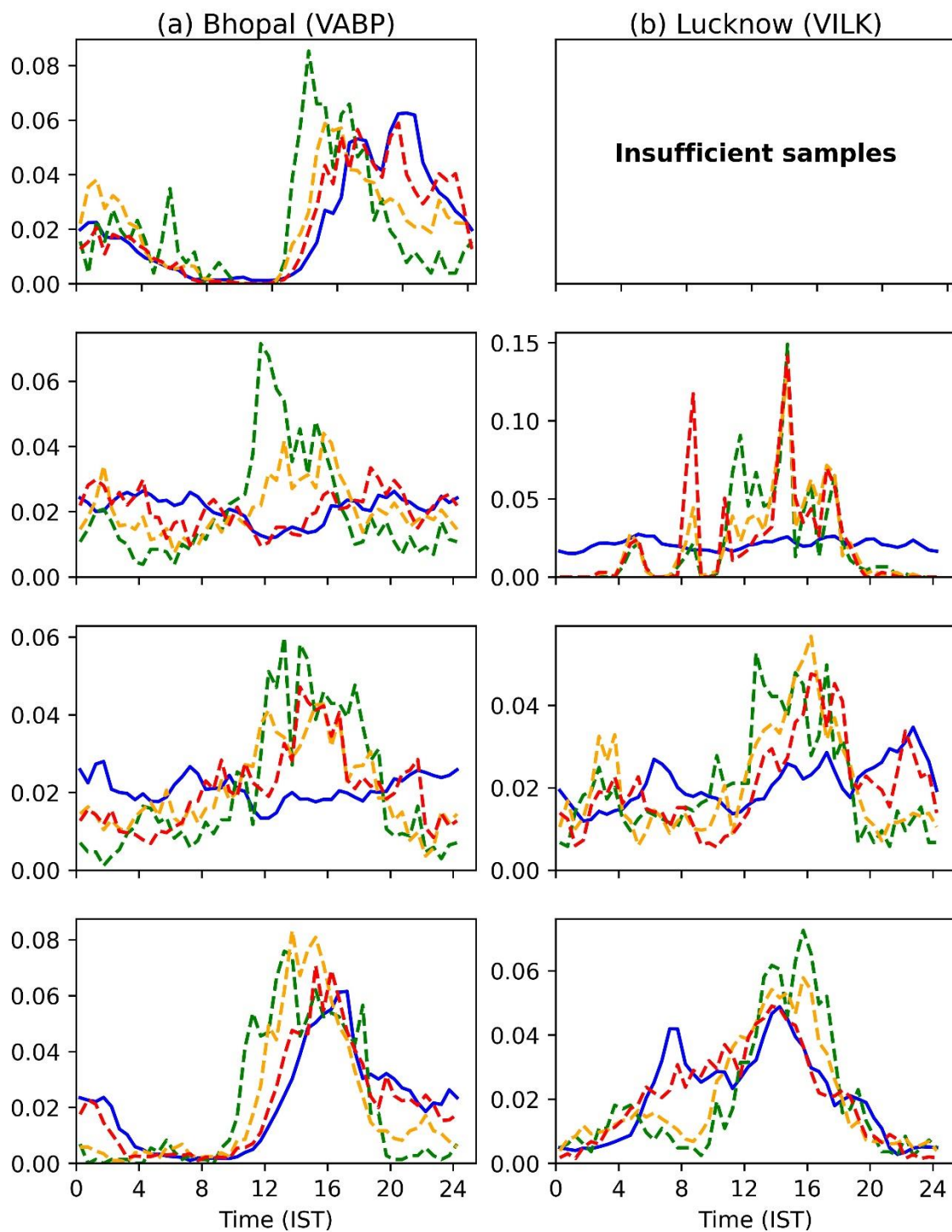


Figure S3. Same as Figure S2 but for the two northern India sites. Results for Lucknow in June are not shown due to an insufficient number of cells from the radar volumes available.

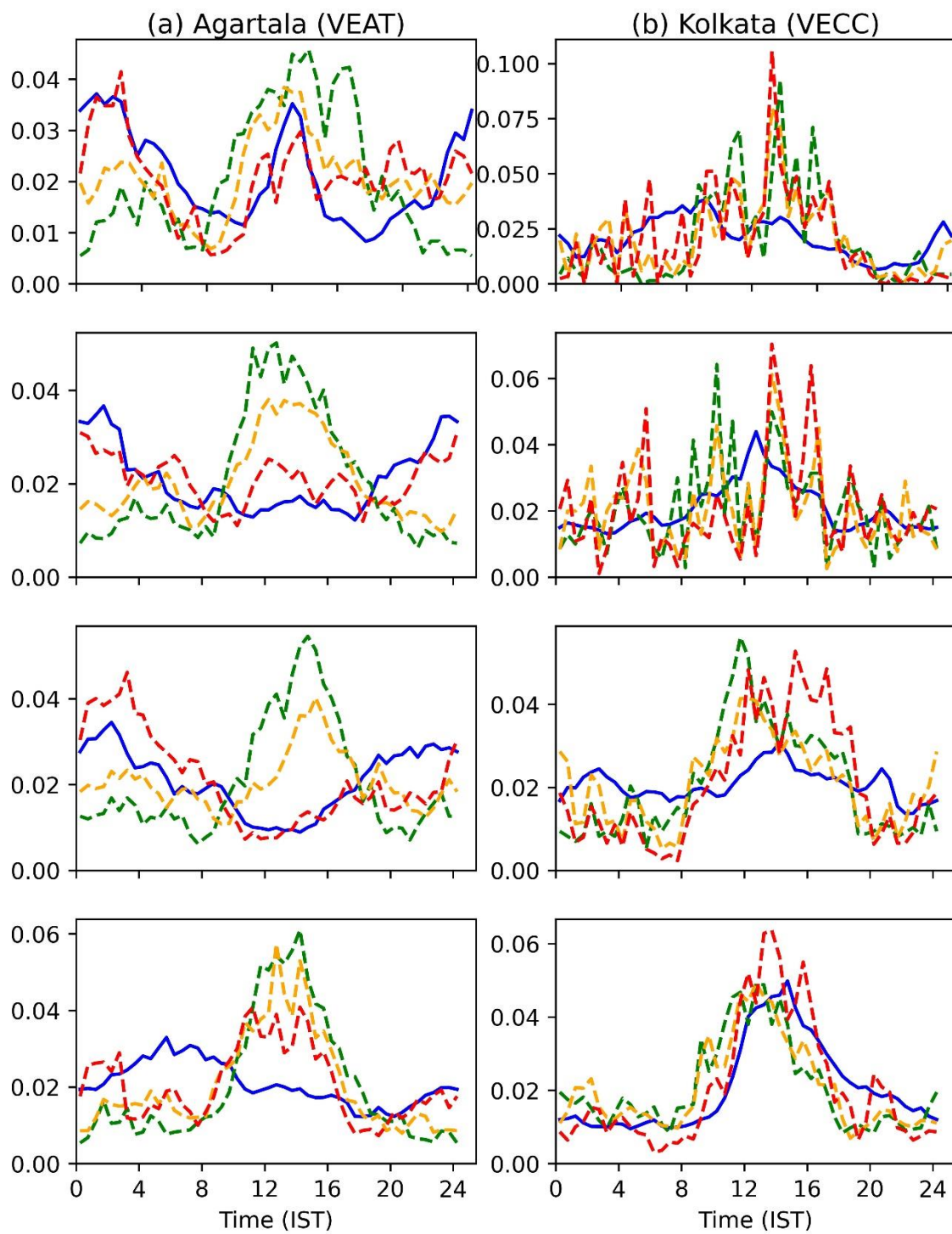


Figure S4. Same as Figure S2 but for the two north-eastern India sites.

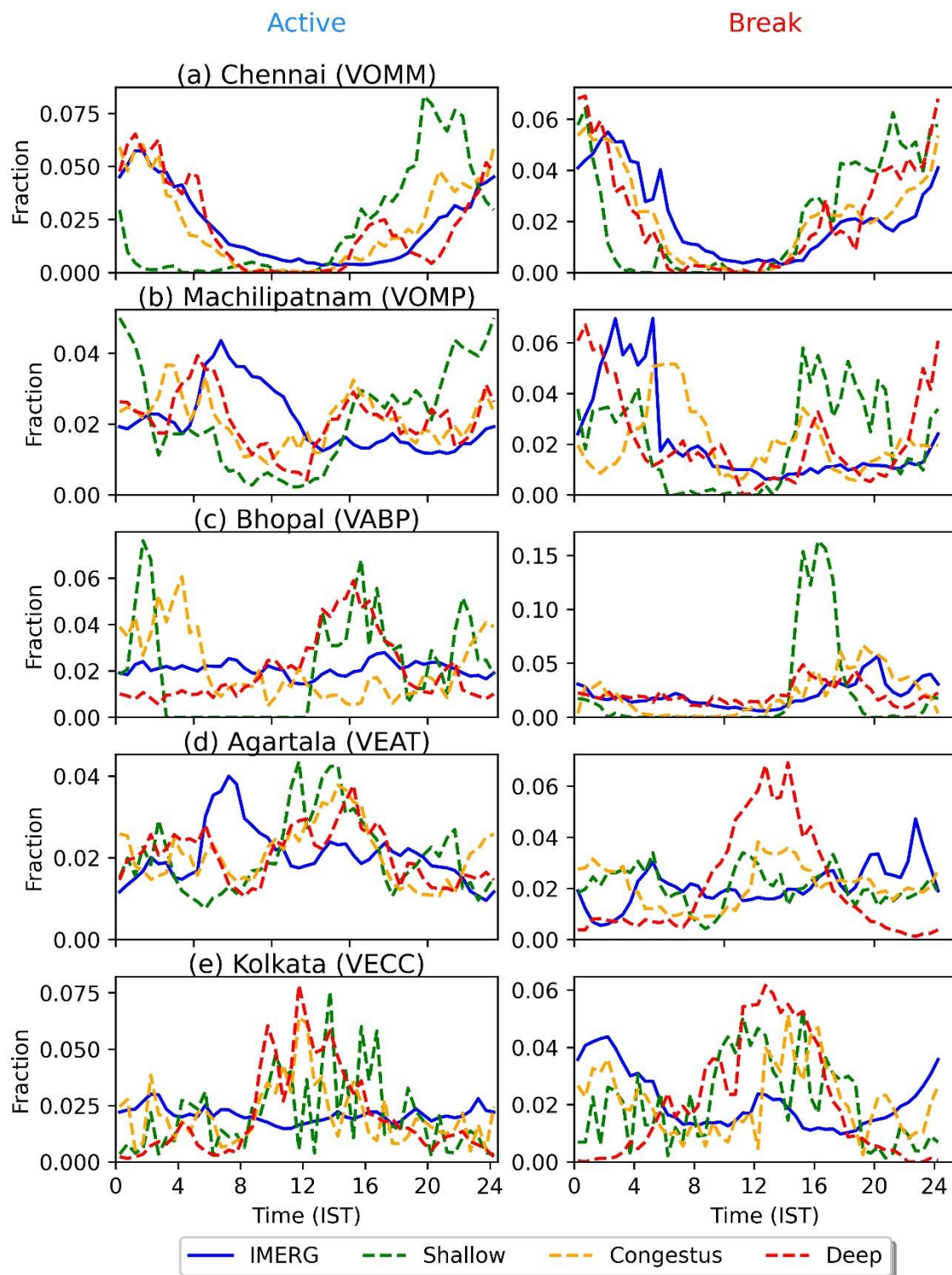


Figure S5. The diurnal cycle of different cumulus modes as in Figure S1 but shown for all cells during active periods (left column) and break periods (right column). Lucknow and Mumbai are not shown.