

Supporting Information

Distinct dual-isotopic signatures of major methane sources in South Asia

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31 **S1. Isotopic source analysis of CH₄ from major sources in South Asia**

32 Isotopic source analysis of CH₄ from major sources in South Asia performed using the Keeling
33 graphical approach based on the data obtained on source-specific samples collected in South Asia.
34 Specific data available in Data S1.

35

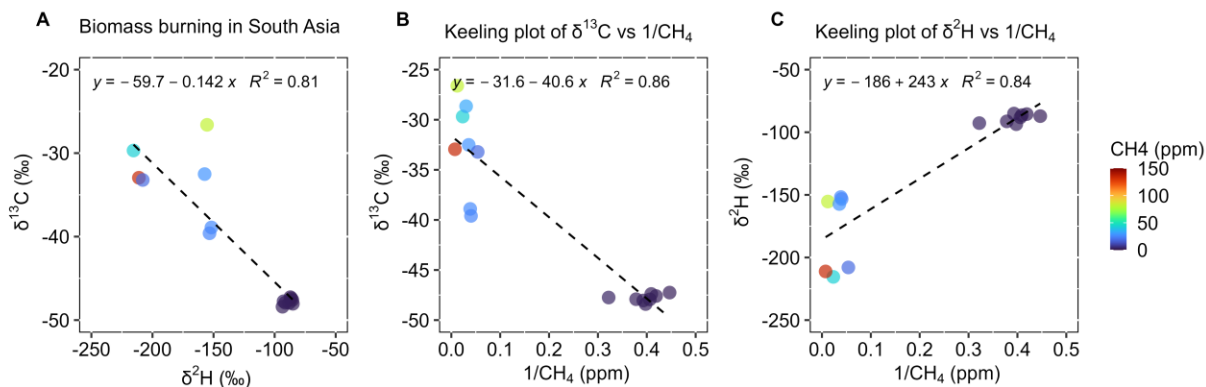


Fig. S1. Mixing ratios and isotopic characteristics of CH₄ from biomass burning in South Asia. (A) Synchronous variations in $\delta^{13}\text{C}$ and $\delta^2\text{H}$ of CH₄. (B) Keeling plot for $\delta^{13}\text{C}$. (C) Keeling plot for $\delta^2\text{H}$.

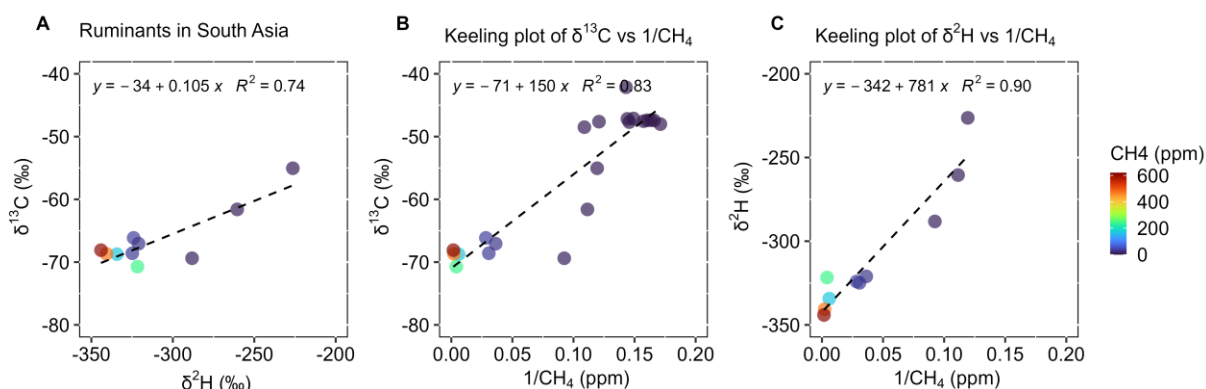


Fig. S2. Mixing ratios and isotopic characteristics of CH₄ from ruminants in South Asia. (A) Synchronous variations in $\delta^{13}\text{C}$ and $\delta^2\text{H}$ of CH₄. (B) Keeling plot for $\delta^{13}\text{C}$. (C) Keeling plot for $\delta^2\text{H}$.

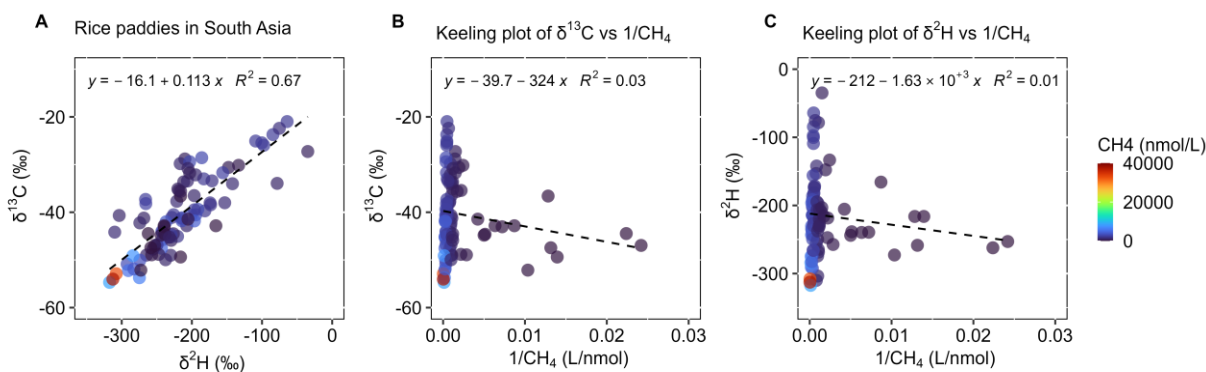


Fig. S3. Mixing ratios and isotopic characteristics of CH₄ from rice paddies in South Asia.

(A) Synchronous variations in $\delta^{13}\text{C}$ and $\delta^2\text{H}$ of CH₄. (B) Keeling plot for $\delta^{13}\text{C}$. (C) Keeling plot for $\delta^2\text{H}$.

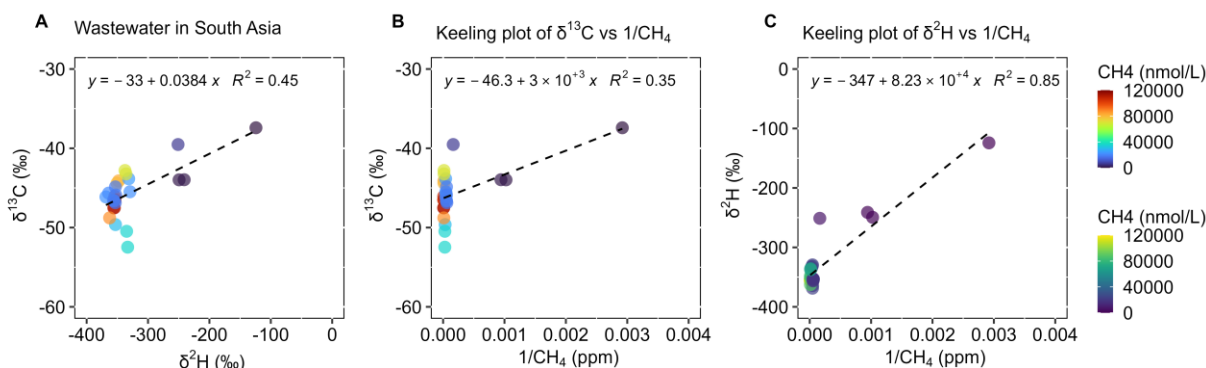


Fig. S4. Mixing ratios and isotopic characteristics of CH₄ from wastewater in South Asia. (A)

Synchronous variations in $\delta^{13}\text{C}$ and $\delta^2\text{H}$ of CH₄. (B) Keeling plot for $\delta^{13}\text{C}$. (C) Keeling plot for $\delta^2\text{H}$.