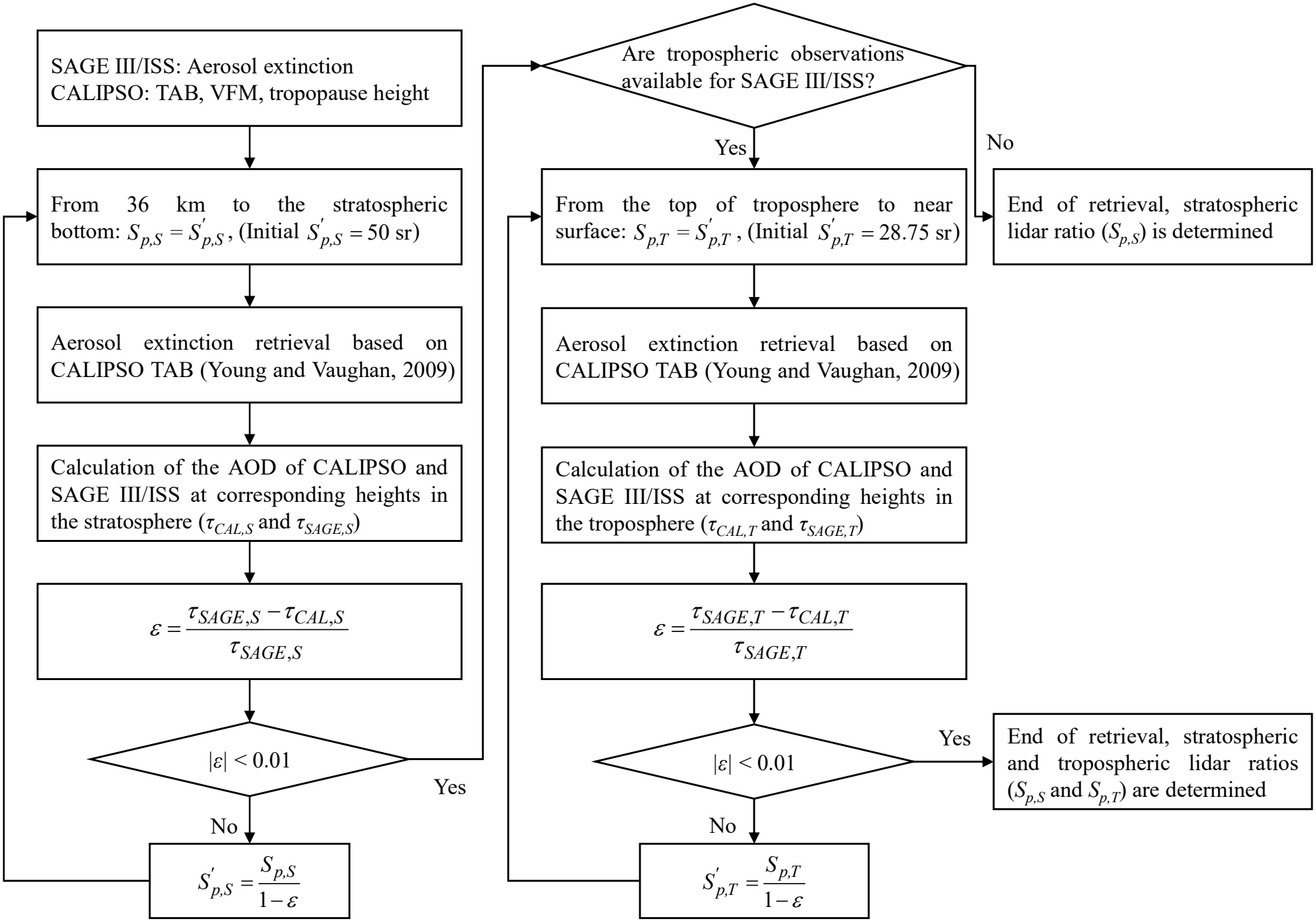
SAGE III/ISS: Aerosol extinction
CALIPSO: TAB, VFM, tropopause height
From 36 km to the stratospheric bottom: $S_{p,S} = S'_{p,S}$, (Initial $S'_{p,S} = 50$ sr)
Aerosol extinction retrieval based on CALIPSO TAB (Young and Vaughan, 2009)
Calculation of the AOD of CALIPSO and SAGE III/ISS at corresponding heights in the stratosphere ($\tau_{CAL,S}$ and $\tau_{SAGE,S}$)
$\varepsilon = \frac{\tau_{SAGE,S} - \tau_{CAL,S}}{\tau_{SAGE,S}}$
$|\varepsilon| < 0.01$
Yes
No
$S'_{p,S} = \frac{S_{p,S}}{1-\varepsilon}$
Are tropospheric observations available for SAGE III/ISS?
Yes
No
From the top of troposphere to near surface: $S_{p,T} = S'_{p,T}$, (Initial $S'_{p,T} = 28.75$ sr)
End of retrieval, stratospheric lidar ratio ($S_{p,S}$) is determined
Aerosol extinction retrieval based on CALIPSO TAB (Young and Vaughan, 2009)
Calculation of the AOD of CALIPSO and SAGE III/ISS at corresponding heights in the troposphere ($\tau_{CAL,T}$ and $\tau_{SAGE,T}$)
$\varepsilon = \frac{\tau_{SAGE,T} - \tau_{CAL,T}}{\tau_{SAGE,T}}$
$|\varepsilon| < 0.01$
Yes
End of retrieval, stratospheric and tropospheric lidar ratios ($S_{p,S}$ and $S_{p,T}$) are determined
No
$S'_{p,T} = \frac{S_{p,T}}{1-\varepsilon}$