Higher aerosols will lead to higher concentrations of CCN which in turn will increase the cloud droplet concentration, increasing the cloud albedo. (Twomey 1974)

In clean maritime environment, increasing aerosol concentration decreased mean cloud droplet size which reduces drizzle production and thus increases liquid water content (Albrecht 1989).

Paper Author (s)	Region/Model Type/ Technique	Finding
Radke et al. (1989) (referenced by Albrecht 1989)	AVHRR satellite imaging and in-situ aircraft measurements. Analysis conducted over the coast of Southern California.	Increased liquid water content is higher in ship tracks
Ackerman et al. (1995)	FIRE-1, and field measurments taken aboard a ship of the coast of Baja California. 1-D numerical model simulation.	Cloud liquid water does not always increase with increasing aerosol content (decreased mean cloud droplet size) due to more rapid evaporation of cloud droplet below the cloud base (due to solar loading) which causes a decoupling between the cloud and sub-cloud layer thereby decreasing moisture into the cloud.
Ackerman et al. (2000)	INDOEX field experiment. LES model simulations.	Increasing the amount of Soot in the atmosphere increases solar absorption which increases temperature which reduces relative humidity which decreases LWP due to reduction in flux of water vapor into the polluted cloud.
Coakley and Walsh (2002)	AVHRR satellite imaging. Mast Campaign. Analysis conducted over the coast of Southern California	Analysis of several hundred 30-km segments of ship tracks. Liquid water in clouds decreases when clouds become contaminated.
Jiang et al. (2002)	RAMS 3D LES to simulate drizzle in marine stratocumulus. ERM to study artic BL. Model initialized based on ASTEX and aircraft measurments.	Due to dynamical feedback penetrating cumulus convection decreases and LWP is reduced. This minimizes the Albrecht effect. No effect of aerosol on the mean lifetime of individual cells (changes only in individual clouds).
Ackerman et al. (2004)	Satellite and in-situ measurments obtained from FIRE-1, ASTEX, DYCOMS-II. Simulations performed on a dynamic subgrade-scale eddy viscosity model	Response of LWP due to increasing droplet concentration is influenced by precipitation at the surface and near clout-top. Only when overlying air is humid does sufficient precipitation reach the surface of the cloud to increase LWP. Otherwise, entrainment of dry air reduces LWP.
Lu and Seinfeld 2005	98 RAMS 3D LES simulations of marine stratocumulus clouds	Cloud optical depth is positively correlated with LWP LWP is strongly dependent on external dynamic forcing parameters such as SST and large scale divergence rate. Largest aerosol effects occur during night time
Lu and Seinfeld 2006	RAMS 3D LES of marine stratocumulus clouds	How relative dispersion (ratio of cloud droplet spectral width to the mean radius of the distribution) increases or decreases the Twomey effect Relative dispersion decreases with higher aerosol loading. Stratocumulus are more susceptible than predicted by the Twomey effect due variation of dispersion with aerosol number concentration.
Xue and Feingold (2006)	UCLA- LES of trade wind cumuli	Response of clouds to aerosols is determined by competing effects of precipitation and droplet evaporation associated with entrainment. Increase in aerosol concentration results in more efficient droplet evaporation and entrainment and suppression of drizzle Variability of cloud optical depth of dominated by changes of aerosol not dynamics.
Xue et al. (2007)	UCLA- LES of shallow cumulus	LES simulations show clear suppression of precipitation. However, there conflicting results on LWP. Two cases: 1. In a precipitating regime, increase in aerosols increases the residence time of cloud condensate. 2. In a weakly precipitating regime, increase in aerosol reduces residence time of condensate through evaporation.