



The variability of temperature and precipitation over Korean Peninsula induced by off-equatorial western Pacific precipitation during boreal summer

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The convection activity and variability are active in Tropic-subtropic area because of equatorial warm pool. The variability's impacts on not only subtropic also mid-latitude. The impact effects on through teleconnection between equatorial and mid-latitude like Pacific-Japan(PJ) pattern. In this paper, two groups are divided based on PJ pattern and JJA Korean precipitation for the analysis that Korean precipitation is affected by PJ pattern. 'PJ+NegKorpr' is indicated when PJ pattern occur that JJA(Jun-July_August) Korean precipitation has negative value. In this case, positive precipitation in subtropic is expanded to central Pacific. And the positive precipitation's pattern is increasing toward north. Because, the subtropical south-eastly wind is forming subtropical precipitation's pattern through cold Kelvin wave is expanding eastward. Cold Kelvin wave is because of Indian negative SST. Also, Korea has negative moisture advection and north-eastly is the role that is moving high-latitude's cold and dry air to Korea. So strong high pressure is formed in Korea. The strong high pressure involves that short wave energy is increasing on surface. As a result, The surface temperature is increased on Korea. But the other case, that 'PJ_Only' case, is indicated when PJ pattern occur and JJA Korean precipitation doesn't have negative value over significant level. The subtropic precipitation's pattern in 'PJ_Only' shows precipitation is confined in western Pacific and expended northward to 25°N near 130°E. And tail of precipitation is toward equatorial(south-eastward). Also, Korean a little positive moisture advection and south-westly is the role that is moving low-latitude's warm and wet air to Korea. So weak high pressure is formed in Korea. The weak high pressure influence amount of short wave energy, so Korean surface temperature is lower. In addition, the case of 'PJ_Only' and Pacific Decal Oscillation(PDO) are occur at the same time has negative impact in Korea temperature through subtropical cyclone and positive PDO. The positive PDO is the role that negative temperature in Korea. So, Korean temperature confined lower by subtropical cyclone and positive PDO. In summary, the relation between PJ pattern and JJA Korean temperature and precipitation depends on subtropical precipitation's pattern. And The subtropical precipitation is effected by Indian SST and PDO's teleconnection.