**Topic 8 – Net all-wave radiation**

1. Match the variable with the symbol/equation:

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| --- | --- |
| **Variable** | **Symbol/Equation** |
| Incoming shortwave radiation | K ↓ |
| Reflected shortwave radiation | *K*↑ = α*K*↓ |
| Absorbed shortwave radiation | *K*↓(1 - α) |
| Incoming longwave radiation | *L*↓ |
| Outgoing longwave radiation | *L↑= L*↓(1 - ε*0* ) + ε*0*σ*T04* |
| Absorbed longwave radiation | ε*0 L*↓ *-* ε*0* σ*T04* |

2. Write down the equation for net shortwave radiation (note write it as a function of albedo (α)):

K\* = K ↓ - *K*↑ = K ↓- α*K*↓ = *K*↓\*(1-α)

3. Write down the equation for net longwave radiation (note write it as a function of surface emissivity (ε*0*) and surface temperature (*T0*)):

L\* = *L*↓- *L↑ = L*↓- *(L*↓(1 - ε*0* ) + ε*0*σ*T04*) = ε*0 L*↓- ε*0*σ*T04*

4. Write down the equation for net all-wave radiation based on the equations in 2 & 3

Q\* = *K*↓\*(1-α)+ ε*0 L*↓- ε*0*σ*T04*